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ABSTRACT

This guide offers a framework for planning, implementing, and evaluating a physical education program for students in primary grades through high school based on Connecticut state goals. The first section contains a discussion of the philosophy and goals of physical education programs and current trends in physical education. The second section discusses the contributions made to physical education from the biological, physical, and behavioral sciences. In the third section, suggestions are made for developing a comprehensive physical education program in the schools. The fourth section deals with designing a curriculum suitable for students at different levels of physical, mental, and emotional development from the ages of three to eighteen. Suggestions are made for considering the characteristics of students at each developmental level, their needs and interests, the teaching philosophy used at each stage, learning outcomes, and desirable experiences. Teaching styles and methods are discussed in the fifth section, and student evaluation and measurement techniques are considered in the sixth section. The seventh section offers insights and suggestions for dealing with students with special needs. Federal, state, and local legal requirements affecting Connecticut school responsibilities are covered in the eighth section. The ninth section recommends organizational and administrative procedures. The tenth section discusses physical education facilities, equipment, and supplies. The final section contains suggestions for extraclass athletic and recreational activities. The appendix contains statewide goals for education specific to Connecticut, a glossary, samples of exemplary physical education practices, and lists of physical education supply sources and resources. (JD)

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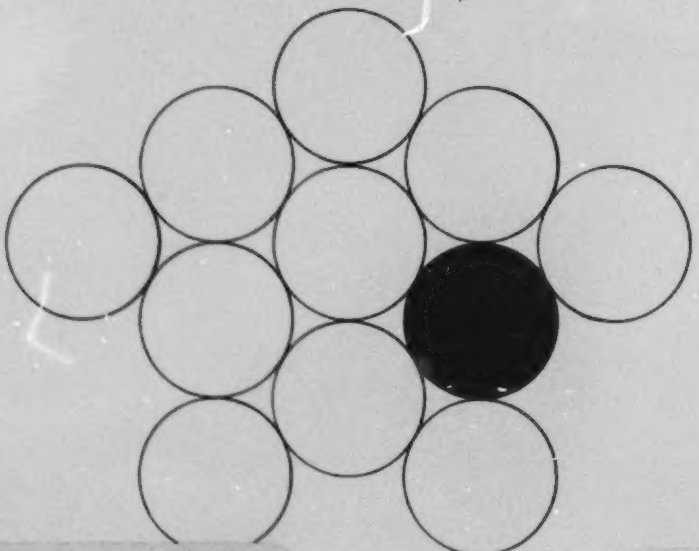
A GUIDE TO CURRICULUM DEVELOPMENT IN
PHYSICAL EDUCATION



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A GUIDE TO CURRICULUM DEVELOPMENT IN

PHYSICAL EDUCATION

Contents

Foreword vii
Acknowledgments ix
1. Physical Education for the '80s 1
Current trends 1
Preliminary steps 2
Philosophy and goals 3
Objectives 3
2. Foundations of Physical Education 4
Contributions from the biological sciences 5
Contributions from the physical sciences 7
Contributions from the behavioral sciences 8
Summary 9
3. Developing a Program 9
Planning a program 10
Scope of the program 11
Sequence of the program 11
4. Designing a Curriculum 15
Three-, Four- and Five-Year-Old Children 16
Characteristics 16
Needs, interests and program implications 16
Teaching philosophy 16
Learning outcomes 17
Desirable experiences 18
Six-, Seven- and Eight-Year-Old Children 21
Characteristics 21
Needs, interests and program implications 22
Teaching philosophy 22
Learning outcomes 22
Desirable experiences 23
Nine-, Ten- and 11-Year-Old Children 26
Characteristics 26
Needs, interests and program implications 27
Teaching philosophy 27
Learning outcomes 27
Desirable experiences 28

12- and 13-Year-Old Children 32
Characteristics 32
Needs, interests and program implications 32
Teaching philosophy 33
Learning outcomes 33
Desirable experiences 34
14- and 15-Year-Old Students 35
Characteristics 35
Needs, interests and program implications 36
Teaching philosophy 36
Learning outcomes 36
Desirable experiences 37
16-, 17- and 18-Year-Old Students 38
Characteristics 38
Needs, interests and program implications 39
Teaching philosophy 39
Learning outcomes 40
Desirable experiences 40
5. Teaching Approaches 42
Common teaching styles 43
Instructional methods 44
6. Evaluating Results 45
Selecting measurement techniques 47
7. Students with Special Needs 49
The Education of All Handicapped Children Act 50
Procedures for special physical education 50
Individualized education program (IEP) 52
Contents of an IEP 52
Placements 53
Methods of modifying and adapting activities 53
Testing 55
8. Legal Requirements 55
Implications of federal laws 56
State laws 56
Other Connecticut laws and regulations 57
9. Organization and Administration Procedures 59
Pupil orientation 59
Time allotment 59
Class size 61
Attendance 61
Excuses 62
Grading in physical education 62
Credit for physical education 62
Scheduling 63
Medical examinations 63
Insurance 64
Accident reporting 64
Safety in physical education 64
Connecticut Interscholastic Athletic Conference 65
The school's role in community recreation 65

10. Facilities, Equipment and Supplies **66**
Number of teaching stations 66
Standards for teaching stations 67
Location, size, accessibility of gymnasium or field house 68
The field house 68
Dance 68
Staff facilities 69
Swimming pool 69
Main dressing room 69
Shower room 70
Appropriate clothing 70
Towel service 70
Playground 71
Types of play area 71
Surfacing 71
Inventory of supplies and equipment 72
11. Extraclass Experiences **72**
Intramural experiences 73
Extramural experiences 74
Interscholastic sport experiences 75
Recreational experiences 75
Related experiences 76

Appendix

A Statewide Goals for Education 79
B Legislation 81
C Resources 82
D Philosophy Statements (Samples) 86
E Scope and Sequence (Samples) 88
F Fitness Trails 93
G Movement Education Lesson (Sample) 95
H An Interdisciplinary Approach 97
I Special Physical Education Student Profile (Sample) 99
J Individual Education Program (IEP) (Sample) 100
K Activity Rating Scale for Learning Disabled Children 101
L Equipment and Supplies 102
M Learning Outcomes 104
N Desirable Experiences 108

Footnotes 113
Glossary 114
Bibliography 122

Foreword

Connecticut has a strong commitment to equity and excellence in public education. The *Comprehensive Plan for Elementary and Secondary Education, 1980–1985*, embodies that commitment. Now this guide to curriculum development, part of a series, is one of the ways in which the State Board of Education is carrying out that commitment.

This concern for equal educational opportunity, dominant in the 1970s and continuing into the 1980s, has been expressed in a number of notable actions:

> The State Supreme Court's historic school finance reform decision *(Horton v. Meskill,* 1978) led to Connecticut's educational equity legislation.
>
> Statutes growing out of this concern for educational equity are Sections 10-262c, 10-262e and 10-16b of the Connecticut General Statutes. Sections 10-262c and 10-262e alter public school funding practices, more than doubling state support over a five-year period and setting a required minimum expenditure per pupil in each school district. Section 10-16b specifies educational programs which must be offered in all districts, with the requirement that they be "planned, ongoing and systematic."
>
> In Connecticut's *Comprehensive Plan for Elementary and Secondary Education, 1980–1985*, submitted to the General Assembly in 1980, the State Board of Education pledged to offer local school districts a greater level of technical assistance and more positive leadership in planning, implementing and evaluating school programs.

The guides have been developed to provide tangible assistance and support to local school districts in complying with the legislative mandate. The titles of the guides correspond to the subjects which Section 10-16b requires all school districts to offer their students: the arts; career education; consumer education; health and safety; language arts, including reading, writing, grammar, speaking and spelling; mathematics; physical education; science; social studies, including, but not limited to, citizenship, economics, geography, government and history; and, at least on the secondary level, one or more foreign languages, and vocational education. The goals and objectives set forth in each of the guides relate to the statewide goals endorsed in the *Comprehensive Plan*, namely, motivation to learn, mastery of the basic skills, acquisition of knowledge, competence in life skills and understanding of society's values.

A Guide to Curriculum Development in Physical Education offers suggestions for developing a planned, ongoing and systematic program of instruction in physical education. Its main theme is the importance of fostering in each individual a sense of personal responsibility for achieving and maintaining physical fitness throughout a lifetime. Physical education in our schools starts that process and encourages its continuance. By providing learning opportunities that are appropriate to the different stages of psychomotor, cognitive and affective growth and development in children and young adults, physical education programs contribute to the health and fitness of all who participate. This guide offers a framework for planning, implementing and evaluating physical education programs whose effects will be widespread and long-lasting.

The State Board of Education curriculum guides are not mandated courses of study for any student or any grade level. Each is intended solely to assist local district educators in the development of curricula. Each guide reflects the thinking and experience of an array of experts in its subject area who become, through this document, an important resource to local district educators.

The Connecticut State Board of Education frequently has expressed its conviction that the diversity of the state's public school system is one of its great strengths. Students, schools and communities do not have identical educational needs; imposing a standardized curriculum would impair, not improve, learning opportunities for students.

It is important for local district educators to keep the position of the Board in mind as they use this guide. There is much of value here which can be used to strengthen instructional practices and promote excellence in the curriculum development process. But these ideas can only enhance, not replace, the creativity, talent and commitment of the people in our local school districts who use this guide.

Mark R. Shedd

Mark R. Shedd
Commissioner of Education

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Their cooperation and commitment to the task is truly appreciated.

Roberta Howells
Consultant in Physical Education

Physical Education for the '80s

1

In today's society, physical education is essential to good health. Modern technology, with its laborsaving devices, motorized transportation and passive entertainment, has resulted in an inactive and sedentary lifestyle for most Americans. Habitual inactivity decreases functional efficiency and may increase the likelihood of coronary heart disease.

Good health practices begin in early childhood. Their development and their lifelong maintenance cannot be left to chance. Effective physical education programs must be an integral part of every child's formal educational experiences in order that each child may develop basic physical skills and positive attitudes and habits of exercise and activity.

Although physical education in schools is taught primarily as a separate subject, it has a close tie to other subjects including the sciences, health education and the arts. What is learned in those programs often relates to physical fitness and conversely the outcomes of a successful physical education program—physically and mentally fit students—can affect learning in every subject field.

Current trends

Over the years, physical education programs have improved tremendously. Teachers have adopted superior methods of instruction, accepted proven research and strived to identify and meet the changing needs of students.

At one time in the past, movement education was questioned as a viable method for teaching physical skills; now it is an accepted part of the elementary school physical education program. Sports participation, once thought to be less desirable for girls than boys, is now socially acceptable and female participation on interscholastic teams is increasing. Overemphasis on team sports at the secondary level has decreased in response to the needs of students for carryover or lifetime sports activities.

Trends in physical education programming for the 1980s are toward teaching what underlies purposeful movement and encouraging students to assume greater responsibility for their own well-being. In a sense, these are trends toward the basics.

The American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) has published a series entitled *Basic Stuff.*[1] The series is designed to help teachers turn theory into practice by actively involving students in the learning of physiological, psychological, sociological and humanistic principles and in motor learning.

The 1980s will be a time for developing positive attitudes toward activity. Physical education programs must go beyond the learning of sports skills and the performing of rote exercises. Instructors must strive to add meaning to movement, to provide students with personal reasons for learning sports skills and to motivate students to choose active rather than passive lives.

The purpose of *A Guide to Curriculum Development in Physical Education* is to help local school districts design and improve programs which will provide each child with an equal opportunity for suitable educational experiences in physical education. It is intended to assist physical educators, department chairpersons, curriculum supervisors, administrators, curriculum committees and members of boards of education in preparing planned, ongoing and systematic programs of instruction in physical education.

The guide is not intended to be a state syllabus or a curriculum outline, but to serve as a resource for those responsible for developing physical education programs. It contains examples of philosophy statements, goals and objectives; describes appropriate physical education experiences for students from three through 18 years of age; suggests teaching approaches and evaluation techniques; and recommends organizational and administrative procedures for an effective physical education program.

Preliminary steps

Before the curriculum development process can begin, planners must examine the educational goals of the state and the district. Program goals and student objectives, to be included in the curriculum, must be compatible with statewide educational goals and with the aspirations of the communities which the district serves. Clarifying the philosophy, goals and objectives within which the curriculum must be developed is a first step.

Another consideration is the legislation and regulatory requirements, state and federal, to which physical education programs, more than many other curricula, are subject (see Chapter 8). The regulations promulgated to implement Title IX of the Education Amendments of 1972, for example, disallow scheduling classes on the basis of sex in most instances. The Education of All Handicapped Children Act of 1975 requires that physical education services be made available to every handicapped child.

Provision for medical examinations and diagnoses of handicapping conditions, and safety precautions are also critical factors to be considered in developing physical education curricula.

Within the prescribed framework, however, local curriculum developers have plenty of opportunity to innovate. They can devise programs around activities that will motivate all students to experience the joy of effort through movement and at the same time develop individual responsibility and lifelong habits for maintaining the highest levels of physical fitness of which they are capable.

Philosophy and goals

Every physical education program should be based on a written statement of philosophy, a set of broad goals and specific objectives. The philosophy statement should include a rationale for physical education and should address the physical needs of students in a particular school district. (For samples of philosophy statements, see Appendix D.)

Goals for physical education programs should include:

- organic development, maintaning a desirable level of health, fitness and physiological function through the development of organic systems of the body;
- psychomotor development, leading to proficiency in the performance of physical skills, sports and game skills requiring coordination, rhythm, accuracy and poise, and with physical acts performed in a graceful and aesthetic manner while utilizing as little energy as possible;
- cognitive development, involving knowledge, sense perception, judgment, memory, imagination, creativity, thinking and reasoning necessary to perform physical skills (Cognitive learning is concerned with an accumulation of knowledge leading to enriched living and the ability to make informed decisions about one's physical well-being.), and
- affective development, expressing an appreciation of self and others, of feelings and emotions, and developing desirable standards of conduct. Affective development in physical education is primarily concerned with experiences relating to movement, sports participation and spectatorship.

Objectives

Objectives for physical education programs should reflect stated program goals and should provide specific direction for learning activities that will help students to:

- develop and maintain an optimal level of physical fitness;
- develop and maintain efficient and effective motor skills in a wide range of activities;
- develop a knowledge and an understanding of scientific principles, rules

and strategies related to physical activities;
- develop decision-making skills leading to informed choices about personal well-being;
- demonstrate patterns of positive social behavior and interpersonal relationships;
- develop a positive self-image;
- develop leadership ability;
- foster an aesthetic appreciation of artistic forms of movement, and
- identify career opportunities in sports and physical education.

A successful physical education program will focus on the needs of individuals. It will offer equal opportunities for each child. The program will emphasize the unique contribution physical activity makes to physical, mental, social and emotional well-being and will encourage students to take responsibility for their own physical fitness. It will develop an awareness of the ways in which fitness enhances one's capacity to enjoy life, to participate and to perform well in work and leisure. Students will emerge with a lifelong commitment to maintaining optimal levels of physical fitness.

The chapters which follow provide guidance for designing effective physical education programs suited to each level of development from prekindergarten through high school.

2 Foundations of Physical Education

To develop and maintain fitness, the individual needs to know how and why the body moves. Concepts in many fields of knowledge—the biological, physical and behavioral sciences and the humanities—provide the foundations for physical education. Anatomy, physiology, kinesiology, biomechanics, physics, mathematics and chemistry offer insights into the movements of the human body. Psychology, sociology and the arts contribute knowledge about human thought processes, human interaction and the expression of feelings as they influence movement behavior.

Physical educators, although they learn the scientific principles during their teacher preparation, rarely incorporate the knowledge into the elementary and secondary curricula. Curriculum developers can insure that the sciences become an integral part of the physical education program.

Contributions from the biological sciences

Biological research has contributed greatly to the understanding of movement and physical fitness.

Edington and Cunningham[2] have proposed a model physical education curriculum for grades K–12 which incorporates biological awareness. Biological awareness is defined as a full consciousness of one's body and knowledge of how it can respond to the demands of the environment.

Corbin[3] has outlined a taxonomy of objectives for physical fitness. The taxonomy includes relevant vocabulary, exercises and regular exercise patterns, physical fitness achievements, problem solving and evaluation. Since it is important for the learner, at an early age, to begin developing a cognitive base for lifestyle and health habits, the progression moves from emphasis on vocabulary and knowledge in grades K–5 to assessment of fitness and problem solving in grades 6–12.

Substantial evidence indicates a need for prescribed levels of regular exercise and proper nutrition. Cardiovascular diseases cause 55 percent of the deaths in the United States. Obesity is a major health problem and low backache is the result of physical degeneration.

Inactivity, coupled with poor nutrition and other undesirable health practices, has resulted in a nationwide fitness problem. Physical education programs should address this problem by providing meaningful learning experiences for students at early ages that encourage regular activity and the practice of proper nutritional habits. The components of health-related and sports-related physical fitness should be incorporated into the curriculum at all levels.

Health-related physical fitness. Health-related physical fitness refers to the maintenance of body functions at levels that will insure continual good health. The components of health-related physical fitness are cardiorespiratory endurance, muscular strength, muscular endurance, flexibility and body composition.

- *Cardiorespiratory endurance.* This represents the ability of the body systems, particularly the heart, circulatory system and lungs, to maintain efficient functioning during and after the stress of exercise. One of the best measures of cardiorespiratory endurance is the maximum amount of oxygen the body can use during exercise, i.e., maximum oxygen uptake (VO_2Max) or aerobic capacity. Because of the high death rate related to cardiovascular diseases, primary emphasis should be devoted to developing a healthy heart and healthy blood vessels.

Assessment of cardiorespiratory endurance and other health-related fitness components can be found in the *Lifetime Health-Related Physical Fitness Test Manual.*[4]

- *Muscular strength.* Muscular strength is the maximum amount of force that can be exerted by a muscle or groups of muscles. The stronger the individual, the greater force he or she can generate. Muscle strength is necessary to carry out daily tasks without undue fatigue. Low back pain disorders, which do not involve organic lesion, can be prevented if a proper level of muscular strength is maintained in specific muscle groups.

To develop strength, muscles must work against an increasing resistance. The great variety of resistance training devices available today gives opportunity to plan programs and build teaching stations for almost any circumstances.

- *Muscular endurance.* Muscular endurance refers to the ability of a muscle or muscle group to persist in activity without undue fatigue. An adequate level of muscular endurance is essential to carry on daily activities. Muscular endurance can be developed by working muscles against a light resistance using multiple repetitions. Pull-ups and sit-ups are commonly used in testing for muscular endurance.

- *Flexibility.* Flexibility pertains to the functional capacity of muscles that cross joints allowing the joints to move through a full range of motion. Lack of adequate flexibility has been linked to low back pain as well as muscle and joint injuries. Toe-touching and sit-and-reach tests are commonly used to measure flexibility.

- *Body composition.* Body composition refers to body mass, usually reported as a percentage of fat and lean body weight. There are several methods for estimating percentage of body fat. The skinfold technique in the triceps and subscapular area is adequate for use in physical education programs.

Sports-related physical fitness. Motor- or skill-related fitness is the ability of the body to execute skills efficiently. Motor skill learning is generally task specific. This should be taken into consideration when reporting the results of various tests. *The Youth Fitness Test Manual*[5] contains methods of assessment of motor skills. The components of skill-related fitness are

- *agility*—the ability of the body to change position quickly;
- *balance*—the ability to maintain the equilibrium of the body in various positions;
- *coordination*—the ability to use sensory receptors in moving parts of the body in the proper order or relationship;
- *power*—the ability to perform strength exercises quickly, and
- *speed*—the ability to perform a movement or cover a distance in a short time.

Sound fitness programs teach students that exercise must be done correctly. The principles of a sound exercise program include:

- *overload*—performance of more activity than that to which the body is accustomed;
- *progression*—gradually increasing the amount of exercise done;
- *regularity*—exercising at regular intervals daily and weekly, and
- *specificity*—performing a particular activity to build specific components of fitness.

Contributions from the physical sciences

Biomechanics and kinesiology provide a basic understanding of the musculoskeletal system and the laws of mechanics so that the functional aspects of human movement can be applied to the teaching-learning situation.

Biomechanics deals with the relationships between mechanical and physical aspects of human movement. The body is viewed as a machine consisting of a group of levers suspended from a central post. The muscles operate the levers and follow certain physical laws.

Physical education curricula at the intermediate and secondary levels should incorporate principles from the physical sciences. For example, the laws of levers, stability, inertia and momentum can serve as a basis for developing learning experiences which will help students understand human movement.

Leverage. A lever is a tool which can perform work. Levers fall into three classes depending upon the relationship of the position of the fulcrum, effort and resistance.

The tricep muscle extending the elbow is an example of a first-class lever. The fulcrum is located between the effort and the resistance.

The brachioradialis muscle which helps to flex the forearm is an example of a second-class lever. The resistance is located between the fulcrum and the effort.

There are many third-class levers in the body. One example is the bicep muscle which also flexes the forearm. In this instance, the effort is between the resistance and the fulcrum.

Stability. Stability occurs when the body is in equilibrium, resisting motion. For the body to remain in a stable position, the center of gravity—a hypothetical point in the body about which all parts are balanced—must be located within the base of support or body parts in contact with the supporting surface. Stability can be increased by lowering the center of gravity and widening the base of support.

Body mechanics or fundamental body skills include standing, walking, sitting, stooping, lifting, carrying, pushing and pulling.

Modern dance, wrestling, martial arts, football and gymnastics are excellent activities through which students can learn the principles of stability.

Inertia. Inertia is the tendency of all bodies at rest to stay at rest and of all bodies in motion to continue their motion.

In physical education, it is important to recognize that force variations are required to perform particular activities skillfully. For example, in gymnastics activities involving rolls or handsprings, it is necessary to apply force against the floor or mat to produce enough speed of movement to overcome inertia.

Momentum. The momentum of the body is defined as the product of mass and its velocity. The law of momentum describes how bodies move when forces act upon them.

The muscles expend less energy after momentum has begun. Once a movement has been started, it is easier to maintain speed than to alter it. Track and field activities provide excellent opportunities for teaching inertia and momentum.

Contributions from the behavioral sciences

The behavioral sciences have provided much information about the teaching-learning process and the importance of the individual as a social being.

The teaching-learning process infers a change in learner behavior, verifiable by comparing performance at different times, and that practice has caused the change. Motor learning, for example, is a change in motor performance brought about through practice. Several theories relevant to physical education follow.

Whole vs part practice. The nature of the task, the characteristics of the learner, the rate of learning and the elimination of errors are factors to consider when deciding whether to practice a task as a whole or in parts. The differences of individual learners and the complexity of the task must be analyzed. Generally, the teaching of parts of the whole is determined by the student's inability to understand the whole. The less the ability of the student to learn the skill as a whole, the more it must be broken down into parts.

Transfer. Transfer refers to the effect the practice of one task has upon the learning of another task.

Although motor-skill learning is generally task-specific, transfer is possible when elements of one task correspond exactly to those of the second.

Psychosocial learning. Since the learning of physical skills takes place in a social setting, attention should be given to the individual as a social being. Getting along with others begins by accepting one's self, one's motives and one's physical capabilities.

Research on the psychosocial aspects of physical education has contributed to increased knowledge in the areas of self-concept and self-image, achievement-related motives, competitiveness, attentional style, stress reduction, affiliation needs and control of aggression.

Physical educators should incorporate important components of the psychosocial area in their teaching. Three examples follow.

- *Achievement-related motives*. Four different but related patterns of behavior are identified with achievement—the need to achieve, the fear of failure, the need to fail and the fear of success. They all affect performance in physical activity. Helping to identify achievement motives may assist students to better understand themselves in relation to physical performance. Activities offered should be challenging and performance should be evaluated on the basis of standards of excellence.
- *Attention style*. This refers to habitual patterns of concentration or attention. Learners sometimes become confused in discriminating between cues to focus on and cues to ignore. Prescribed programs of activities could be developed to help students identify critical cues and to help students practice concentrating on these cues.
- *Affiliation needs*. Most individuals possess a need to affiliate with other individuals. This social need can be satisfied by participating with others in physical activity. Through group interaction students develop friendships, perceive similarities between individuals, evaluate themselves and make social comparisons. Many opportunities for cooperative and competitive experiences should be incorporated into the curriculum.

Summary

A physical education curriculum that incorporates concepts from many fields of knowledge will help students understand the interrelationship of human movement with the total environment. Curriculum planners can accomplish this by purposefully placing concepts, laws and principles from the sciences sequentially into the physical education program and by using interdisciplinary methods of instruction.

Developing a Program

3

The initial approach to developing a program in physical education is not unlike the strategies and techniques used to develop programs in other subject areas.

Preliminary preparation should cover the purposes for developing curriculum guides including philosophy, rationale and desired outcomes. It also should address the process of developing curriculum guides including establishing a committee, identifying needs, allocating resources and setting timelines. Other factors which should be considered include legislation, school board policies, school and community expectations, costs, dissemination, in-service training, relevance to district and state goals and the evaluation of the curriculum development process. These factors should be considered before beginning the construction of a framework for a physical education program.

Guidance for the initial phase of program development can be found in the Connecticut State Board of Education's companion publication entitled, *A Guide to Curriculum Development: Purposes, Practices and Procedures.*

After the initial preparation has been completed, planning for a sequential program for physical education can begin.

Planning a program

Curriculum has been defined as a "plan for instructional action based on a set of decisions intended to be reflected in the actions of learners."[6] To be effective these planned actions for instruction must be consistent with statewide goals for education and contribute to the fulfillment of district goals.

In developing a plan for instructional action, physical education program planners must make critical decisions during the planning process in order to provide for the best possible learning experiences for students. These decisions include:

student needs
appropriate goals
appropriate objectives
expected learning outcomes
desirable learning experiences
effective evaluation

Student needs can be assessed by reviewing evaluation data and screening test data. In addition, parent, teacher and student questionnaires and interviews should be helpful.

Appropriate goals for the physical education program should be determined by student needs and should take into consideration the organic, psychomotor, cognitive and affective development of the students.

Objectives, to be appropriate, should reflect the stated program goals and provide specific direction for developing meaningful learning experiences for students. Physical and motor fitness, decision-making skills, positive social behavior, positive self-image, leadership development, aesthetic appreciation and career awareness should be considered when developing objectives.

Expected learning outcomes should relate directly to the stated objectives, providing students with guidance as to an expected level of performance. The learning outcomes should be written so that students will know what is expected of them. For example, at what level of fitness or to what degree of proficiency must they perform motor skills?

Desirable learning experiences are important and should be planned carefully to enable students to meet expected levels of performance. Decisions made during the curriculum development process will directly affect whether or not the objectives and the program goals will be met.

After student needs have been determined and appropriate goals and objectives have been established, curriculum planners should begin to develop the scope and sequence of the program.

Scope of the program

Initially, it is important to determine the amount of instructional time which will be devoted to meeting the program goals and objectives. Answering the following questions should be helpful.

- What percentage of total available physical education instructional time should be devoted to the organic development (health-related physical fitness) of three- to five-year-olds, of six- to eight-year-olds, etc.?
- What percentage of total available physical education instructional time should be devoted to the psychomotor development (motor skills) of three- to five-year-olds, of six- to eight-year-olds, etc.?

Similar questions should be answered for the goals of cognitive and affective development.

When arranged in table form, the answers to the above questions will provide a schematic picture of the relative emphasis which should be placed on each goal area. Table 1 provides an example of suggested percentages of total physical education instructional time which should be devoted to meeting the objectives for each program goal for each age group.

After decisions have been made regarding the time allotted to each program goal, curriculum planners should identify the physical education activities which will be offered in the program. These activities should be grouped or categorized.

Commonly used categories for grouping activities are body management, individual sports, team sports, lead-up games or games of low organization, rhythms, racquet sports, field sports, lifetime sports, leisure and recreational activities and activities using apparatus and aquatics.

Sequence of the program

The next step in planning is to determine the program sequence. This entails deciding which activity categories are suitable for each age group and the amount of time to be allotted to each.

For the purpose of this guide, the following activity categories were chosen as examples: body management and manipulative activities, rhythm and dance, apparatus and tumbling, lead-up games, aquatics, individual and dual sports and team sports.

Table 2 shows a sample program for three- to 18-year-olds. The table indicates a suggested percent of total yearly instructional time which should be scheduled for each activity category for each age group. This demonstrates a transition in program emphasis. For example, instruction in team sports decreases for 16- to 18-year olds, whereas participation in lifetime and leisure activities increases.

The following serves as an example for converting the percentages suggested in the table to actual time. If the total yearly time allotted to physical education for five-year-olds was 100 periods, 45 percent or 45 periods should be scheduled for body management and manipulative activities, 30 percent or 30 periods should be scheduled for rhythmic activities and 25 percent or 25 periods should be scheduled for apparatus and tumbling activities.

By developing a table such as the one suggested, curriculum planners can show graphically the sequences of activities which are suitable for various age groups.

The next step in developing the program sequence is to describe specific

Table 1
Suggested percent of total physical education instructional time allotted to goals for each age group

	GOAL AREAS			
	Organic Development (health-related fitness)	**Psychomotor Development (motor skills)**	**Cognitive Development (knowledges and understandings)**	**Affective Development (feelings)**
Objectives (suggested)	• Develop and maintain an optimal level of physical fitness.	• Develop and maintain efficient and effective motor skills in a wide range of activities.	• Develop knowledges and understandings of scientific principles, rules and strategies relating to physical activities. • Identify career opportunities.	• Develop a positive self-image. • Foster an anesthetic appreciation of artistic forms of movement. • Demonstrate patterns of positive social behavior and interpersonal relationships.
Age Groups				
3– 5	20 percent	60 percent	10 percent	10 percent
6– 8	gradual	gradual	gradual	↑
9–11	increase	decrease	increase	
12–13	to	to	to	
14–15	↓	↓	↓	↓
16–18	40 percent	35 percent	15 percent	10 percent

activities for each of the appropriate age groups. Expected learning outcomes and desirable learning experiences should be determined to meet the goals and objectives of the program.

Thus each activity category will have written outcomes and experiences which reflect previously established program goals and objectives. (See Table 1 for suggested time allotments.) In other words, the commitment to organic development (health-related physical fitness), psychomotor development (motor skills), cognitive development (knowledges and understandings) and affective development must be specifically built into the program.

Designers of learning experiences should recognize that program goals can be interrelated. For example, a student may be performing a physical skill (psychomotor development—running) thereby contributing to health-related physical fitness (organic development—cardiorespiratory endurance). At the same time, the student is learning the principles of interval training and maximal oxygen consumption (cognitive development) and feeling good about running (affective development).

An example of a framework for relating expected learning outcomes and desirable learning experiences to program goals can be seen in Table 3. The table was designed for the activity category of body management and manipulative

Table 2
Suggested percent of total yearly time allotted to each activity category for each age group

Activity Categories	Body Management and Manipulative	Rhythms and Dance	Apparatus and Tumbling	Lead-up Games	Aquatics*	Individual and Dual (including gymnastics)	Team Sports
Age Groups	%	%	%	%	%	%	%
3– 5	45	30	25				
6– 8	50	25	25				
9–11	20	15	25	40			
12–13		10			10	40	40
14–15		5			10	45	40
16–18		5			10	60	25

*If facilities are not available, percentages should be adjusted or other activity categories chosen.

skills and is suitable for three- to five-year-olds. The table serves only as an example of a framework or format. Many additional outcomes and experiences should be developed.

A similar format should be developed for every activity category for each age group. Additional examples of the scope and sequence of programs can be found in Appendix E.

Table 3
A framework for relating expected learning outcomes and desirable learning experiences to program goals for body management and manipulative activities for three- to five-year olds

	GOAL AREAS			
	Organic Development (health-related physical fitness)	**Psychomotor Development (motor skills)**	**Cognitive Development (knowledges and understandings)**	**Affective Development (feelings)**
Expected Learning Outcomes (suggested)	The student will • demonstrate pre-activity exercises with proficiency. • perform ten sit-ups.	The student will • solve a body management problem by running, crawling, or rolling with proficiency. • toss a ball to three different heights catching it with 100 percent accuracy. • demonstrate an understanding of flow by flowing smoothly from one locomotor skill to another.	The student will • demonstrate abstract symbols by moving the body in such a way as to create two recognizable letters.	The student will • demonstrate a willingness to participate in all activities.
Desirable Learning Experiences (suggested)	• flexibility exercises such as: Can you bend over and touch your toes? How else can you bend? • strength and endurance exercises such as sit-ups and the use of a climbing ladder.	• changing the size and shape of the body such as: Can you be very big? Very small? • tossing and catching such as: Can you toss and catch the ball or bean bag alone? With a friend? • move different ways with different parts of the body such as: Can you hop? Now run? Now turn?	• stretching, bending and reaching to form various letters and numbers.	• a variety of simple activities which provide the students with opportunities to experience success.

Designing a Curriculum 4

After curriculum planners have developed program goals and objectives and have outlined the broad scope and sequence to the program, the next step to be taken is to design numerous instructional activities which will help to accomplish the program goals (see Table 3, page 14).

This can be done by identifying growth and development characteristics and the needs and interests of the students in each age group. Then, based on this information, expected learning outcomes and desirable learning experiences should be developed.

Expected learning outcomes. At each age level the curriculum should provide for the identification of specific competencies or knowledges and skills which students are expected to learn. Assessment of student performance will serve as a means of determining the degree to which program goals and objectives are being met and also may indicate the achievement standards that may reasonably be set for different grade levels.

Desirable learning experiences. When expected learning outcomes have been established, desirable learning experiences should be developed for each age group. The learning experiences should reflect growth and development patterns and the needs and interests of the students.

This chapter provides information on the characteristics, needs and interests of students from age three to 18. Note that a wide range of individual variations occurs; the information given represents an average for each age group.

The chapter also provides examples of teaching philosophies suitable for each age group, as well as examples of expected learning outcomes and desirable learning experiences for health-related physical fitness, body management, manipulative activities, rhythms and dance, apparatus and tumbling, lead-up games, aquatics, individual and dual sports and team sports. These experiences include cognitive and affective as well as psychomotor achievements.

Local curriculum developers may choose other activity categories, other learning outcomes and experiences. Those given on the following pages are illustrative only.

THREE-, FOUR- AND FIVE-YEAR-OLD CHILDREN

The primary program should provide opportunities for pupils to begin developing a foundation in body management and basic skills. Opportunities to further develop eye-hand coordination using simple manipulative activities should also be included.

Characteristics

Growth is steady and slow. Large muscles are better developed than small ones. Bones are somewhat soft. Muscular strength is limited. Heart and lungs are small in relation to height and weight. The heart is growing rapidly. Various parts of the body develop at different rates. The legs grow faster than the arms; arms grow faster than the trunk; and the trunk faster than the head. During this time children experience periods of great brain growth.

Walking and running patterns are well established. Climbing is natural. Children are very active but are easily fatigued. Gross motor control of fingers and hands is incomplete. Motor skills are unevenly developed.

The children are sensitive and individualistic; they are curious and anxious to perform. Attention span is usually short. Anger is provoked when confronted with difficult or confusing situations beyond their skill development level. There is a rapid expansion of both understanding and use of language. An intellectual curiosity in the form of asking many questions occurs.

Needs, interests and program implications

The needs and interests of three-, four- and five-year-olds include large muscle activity, frequent rest periods, exploring a variety of locomotor movements, using manipulative objects, exploring skill ability by interacting with a variety of equipment, experiencing success and involvement in cooperative endeavors.

A program designed to meet these needs should include opportunities for exploratory movement including climbing, hanging, swinging and supporting the body in various positions; the use of a variety of equipment such as ropes, hoops, balloons, balls, mats, balancing and climbing apparatus and bean bags; perceptual motor experiences (related to laterality, directionality, balance and coordination); combining rhythm with fundamental skill development; basic fitness activities and postural exercises.

The program should provide for a spirit of cooperation and sharing, skill development which corresponds with maturation levels, and the development of self-confidence. Appropriate activities will increase speaking and listening skills, reinforce spatial concepts and encourage thinking by presenting problem-solving tasks.

Teaching philosophy

The preprimary school physical education instructional program should be oriented to movement exploration. The focus should be on movement experiences, for it is through movement exploration that young children learn about themselves, who they are, what they can do and how they relate to the world around them.

The majority of suggested experiences for the preprimary school program are individual in nature, centering on body management, manipulative skills, rhythms, apparatus, stunts, and tumbling. The types of experiences are such that children have good opportunities to explore, try out and create. They learn to express themselves through movement and continue to develop the skills of verbal communication—speaking and listening.

The program at this level should provide opportunities for pupils to begin to lay the foundation for body management and basic skills, taking into consideration the child's fitness needs. Encouraging the development of eye-hand coordination through simple manipulative activities is important. Perceptual-motor competency has strong application to methodology on the preprimary level.

These well-planned experiences should be geared to meet the divergent developmental needs of all pupils—the gifted, the average, the slow learner and the mentally, physically and emotionally handicapped. Parents should be encouraged to take an active part in the program by understanding the basic principles of the program and by helping their children follow through with activities at home.

Learning outcomes

The following learning outcomes are not intended as state standards or as a comprehensive listing but rather as examples for school districts to utilize in developing outcomes.

Health-related physical fitness. When asked to demonstrate preactivity exercises, the pupil will do so with proper form and proficiency.

Body management. When presented with a body management problem related to moving different parts of the body in different ways, the pupil will solve the problem by running, hopping, crawling or rolling with proficiency.

Manipulative skills. When presented with a manipulative task related to tossing and catching, the pupil will execute the task by tossing the ball at three different heights and catching it with 100 percent accuracy.

Rhythms. When presented with a rhythmic task related to contrasting movements, the pupil will execute the task by traveling very lightly, moderately heavily or very heavily with precision.

Apparatus, stunts and tumbling. When presented with an apparatus task related to balancing, the pupil will execute the task by walking the length of the balance beam forward, sideward and backward with proficiency.

While all of the above learning outcomes contain elements of cognitive and affective achievement, these aspects of learning can be demonstrated more specifically, as indicated in the following examples.

Cognitive. When presented with the task of demonstrating abstract symbols, the pupil will create recognizable letters and numbers by moving his or her body in various ways.

Affective. The pupil will demonstrate a feeling of self-confidence by responding positively toward movement and by demonstrating a willingness to participate in all activities.

Desirable experiences

Experiences can be identified that will lead to each of the learning outcomes that are expected. A discussion of some of these desirable experiences and examples of the tasks that will stimulate learning appear below.

Health-related physical fitness. Physical fitness activities and exercises refer to those activities which help to develop muscular strength and endurance, cardiorespiratory endurance and flexibility. Fitness components should be incorporated into all aspects of the program. Children should begin to be aware of how exercise affects their bodies. Those identified as less physically able should receive individual help to improve their fitness.

Experiences. Children should be encouraged to develop strength and endurance in the large muscle groups, particularly the upper arm, shoulder, abdominal and leg muscles. They should begin to understand the terms "muscles" and "flexibility" and to relate "out-of-breath" with strenuous exercise.

Tasks and/or problems may be designed by the teacher around such ideas as:

- difference in the rate of breathing. How fast do you breathe when you sit still? How fast do you breathe when you run around?
- flexibility of the body. Can you bend over and touch your toes? How else can you bend?
- strength of muscles. Can you lie down and sit up ten times? Using a climbing ladder, can you pull yourself up from the floor by using only your arms?

Body management. Management of the body refers to physical control of the body in a variety of movement situations in relation to environmental demands. Basically, proper management of the body is needed to counteract the forces of gravity in normal activity. Good body management implies that the child can make unilateral, bilateral and cross-lateral movements with ease and in good balance.

Preprimary school pupils should be provided with opportunities to develop basic body management skills. Much of the activity will be in the form of self-initiated exploration which necessitates providing adequate time for the children to find their own way of handling their bodies on the floor and on apparatus. Children should begin to learn what the body can do, how the body can move, and where the body can go, encompassing movement factors of time, force, space and flow.

Experiences. The maintenance of good body mechanics; control and balance of the body in different positions; rhythm of movement; coordination and efficient movement; management of the body effectively on the floor (as in balance or flexibility stunts), moving across the floor, in the air (off the floor), and suspended on apparatus; efficient use of force in all locomotor and nonlocomotor experiences; perceptual-motor competency (the concept of laterality, the ability to control the two sides of the body separately and simultaneously) must be developed.

Tasks and/or problems may be designed by the teacher involving:

- changes in size and shape of the body. Can you be very big, very little?
- moving in different ways on different parts of the body. Can you run? Hop? Jump? Roll?
- changes in speed as you move. Can you run very fast? Very slow?
- stillness and balancing. Can you balance on one foot? On some other part of your body?
- using apparatus in general ways. Can you go over, under, around, on and off apparatus?

Manipulative skills. A manipulative activity is one in which a child handles some kind of play object, usually with the hands, but possibly by involving the feet and other parts of the body. The emphasis is on skillful manipulation of the object being used. The focus changes from the body alone, as in floor work, to the body in relation to the object being used. Manipulative activities can strengthen both hand-eye and foot-eye coordination as well as develop dexterity in handling a variety of play objects.

Preprimary school children should be offered a basic manipulative skills program that teaches by using an exploratory approach. The beginning skills learned at this level should set the foundation for the more precise manipulative skills at the higher levels.

Considering the lack of hand and eye coordination at this level, it is recommended that the beginning activities with balls be largely exploratory and unstructured.

Experiences. Children should be encouraged to explore and seek understanding about handling balls by catching, throwing, bouncing, rolling and dribbling. Different ways of batting a ball with the hand can be investigated. Children may combine such simple locomotor skills as walking while manipulating small apparatus. Activities involving the use of bean bags, wands, hoops, ropes and other small equipment and apparatus are appropriate for this age level.

Tasks may be designed by the teacher around such ideas as:

- balancing objects. Can you balance the bean bag on different parts of your body?
- bouncing and rolling. Can you bounce the ball? Roll the hoop?
- tossing and catching. Can you toss and catch the ball or bean bag? Alone? With a friend?
- moving the object with various parts of the body. Can you move the ball

with your feet? Hands? Elbows?
- free use of manipulative objects with the children using the objects as they please. Emphasis is on keeping the object under good control and playing with it in such a way that it doesn't interfere with the activities of others.

Rhythms. Movement can be identified as either functional or expressive. Dance is expressive movement, adapted to communicate an idea, mood or feeling. Dance is a learning process, designed to provide children with the opportunity and movement vocabulary to express themselves through movement and, in doing so, to enrich their self-concept and movement awareness. Not only are dance experiences a tool for self-expression, but inherent in rhythmics are excellent possibilities for physical development. Progress toward the perfection of simple skills is enhanced by the accompaniments of rhythm.

The preprimary school rhythmic program should include beginning work in the area of educational dance and rhythmic activities. The focus should be on exploration with very simple individual work on body and space awareness.

Experiences. All forms of locomotor or nonlocomotor movements, identification rhythms, dramatization and singing games are desirable. Tasks may be designed by the teacher around the following program ideas:

- using the body expressively. Can you move softly? Do something to show you are strong.
- contrasting movements. Can you travel feeling very tall? Now very small?
- all forms of locomotion. Show how you run, skip, hop, jump, etc.
- movement to rhythm instruments, such as a drum, records or student-made instruments.
- imitation, such as becoming an animal or object, and moving appropriately.
- singing games and story plays, such as Looby Loo, the Muffin Man, and Farmer in the Dell.

Apparatus, stunts and tumbling. Work on apparatus is an extension of the floorwork described previously. The many activities developed for the floor are readily adaptable to apparatus. Exercising on overhead and climbing apparatus increases the muscular endurance of the hand, arm and shoulder girdle, and develops the ability to support body weight and to manage the body free of ground support. Such experiences help the child develop strength, coordination, balance, agility, courage, self-confidence and initiative. Variety in apparatus activity can be enhanced by the addition of tumbling. Tumbling stunts add another dimension to movement possibilities.

Preprimary school pupils should be offered basic apparatus and tumbling experiences which will provide a firm foundation on which to build more formal skills of gymnastics. A variety of simple stunts involving gross body movements, opportunity for creative expression, control of balance and directional concepts should be introduced. Basic safety aspects should be stressed.

Experiences. Climbing and hanging activities include climbing ropes, horizontal ladders, climbing frames and the exercise bar. Apparatus placed on the floor includes: balance beam, activities on benches, activities on jumping boxes, magic ropes, individual mats, balance boards, bounding boards, gym scooters, combination sets. Variety in apparatus activity can be enhanced by the addition of stunts and tumbling activities, such as side roll, forward roll, backward roll, seesaw and kangaroo.

Tasks and/or problems may be designed by the teacher around such ideas as:

- hanging from apparatus. Can you bend only the knees and hang on? How many different ways can you hang?
- using the balancing beam. Can you stand on the balance beam, jump down to the floor with both feet on one side and then jump back up? How else can you mount and dismount the beam?
- using the climbing rope. Can you run, jump, grasp a rope and swing?
- tumbling. How many ways can you do a forward roll? Side roll?
- balancing. Can you walk the length of the beam forward, sideward and backward.

SIX-, SEVEN- AND EIGHT-YEAR-OLD CHILDREN

The primary program should provide for review and further development of basic movement skills learned at the preprimary school level. The program should provide opportunities for pupils to express themselves through movement and to continue developing the skills of verbal communication—speaking and listening.

Characteristics

Relatively rapid structural growth occurs. Large muscles are better developed than small ones. Bones remain somewhat soft. Muscular strength is limited. Heart and lungs are small in relation to height and weight. The heart is growing rapidly. There is an uneven development of body parts. The chest grows faster than the abdomen, legs faster than the trunk, and the face faster than the head. Pulse and breathing rates decline, moving gradually toward their adult levels.

Children are very active but still fatigue easily. Gross motor control of fingers and hands is incomplete. Motor skills progress unevenly. Eyes are slow to focus. Speed of reaction is about half that of an adult.

The children are friendly, affectionate and curious. Their emotional development continues to depend on security and acceptance. There is a struggle between a need for help and an urge to be independent. Expression of emotions is more controlled. A fear of danger is somewhat dispelled by developing skill and self-confidence.

Six-to-eight-year-old youngsters display intellectual curiosity. The attention span is short and related to motivation. There is a rapid expansion of both understanding and use of language. Reasoning and problem solving become more adequate.

Needs, interests and program implications

The needs and interests of six-, seven- and eight-year-old children include vigorous activity, a variety of activities of brief duration, body management skills, manipulative skills, fitness-related activities, self-expression, cooperation, problem solving, discovering and exploring.

The program should provide: practice in perceptual-motor skills including right and left, unilateral, bilateral and cross-lateral movements; practice on large apparatus and with small hand apparatus such as balls, ropes, wands, and bean bags; opportunities for the children to experience success, praise and encouragement; experiences to help children understand how their bodies move; and chances to develop a movement and fitness vocabulary which will enhance future learning.

Teaching philosophy

The primary school physical education instructional program should provide for review, reinforcement and further development of all basic movement skills learned at the preprimary school level.

The experiences at this level should continue to be individual in nature for six-year-olds but should evolve to be individual, small group, and large group in nature for seven- and eight-year-olds. Emphasis should continue to be placed on body management, rhythms, manipulative skills, apparatus, stunts and tumbling.

The program should continue to provide opportunities to explore, try out and create. It should provide opportunities for the pupils to express themselves through movement and continue to develop the skills of verbal communication—speaking and listening.

The primary school program should place emphasis on mastering basic movement skills and learning to use them more efficiently, effectively and creatively.

Learning outcomes

The following learning outcomes are not intended as state standards or as a comprehensive listing but rather as examples for school districts to utilize in developing outcomes.

Health-related physical fitness. The pupil will demonstrate his/her understanding of basic fitness terms.

Body management. When presented with a body management problem related to weight bearing, the pupil will solve the problem correctly by standing on one foot, arms and knees or hands and feet with efficiency.

Manipulative skills. When presented with a task involving a single piece of apparatus and a partner, the pupil will execute the task correctly by playing toss and catch with a partner, one bounce or two bounces, toss and catch over or through something with accuracy and efficiency.

Rhythms. When presented with a task involving movement to rhythm instruments, the pupil will execute the task correctly by traveling to the beat—fast, slow, medium and/or high-low in good form.

Apparatus, stunts and tumbling. When presented with an apparatus problem involving climbing a rope in different ways, the pupil will solve the problem correctly by climbing efficiently using hands and feet, hands and knees or hands only.

Specific demonstrations of cognitive and affective achievements may also be included among the expected learning outcomes.

Cognitive. The pupil will demonstrate her/his ability to utilize movement terminology to describe movement experiences.

Affective. The pupil will respond positively toward interaction with peers as demonstrated by his/her eagerness to participate in small group and large group activities.

Desirable experiences

Activities for ages six, seven and eight are similar to those for younger children but gradually increasing in complexity.

Health-related physical fitness. Fitness activities should continue to be incorporated into all aspects of the program. Individual help should be provided for children who are identified as less physically able. The children should begin to understand simple fitness concepts.

Experiences. Bending, stretching, strength and endurance activities should be continued. In addition, children should begin to understand that exercise contributes to a healthy body.

Concepts around which teachers can design sample tasks and/or problems that will provide learning experiences are:

- muscles move your body. Can you point to muscles which move your arms? Legs? How many ways does your arm move?
- muscles increase in size. What happens to the muscles in your arms when you climb the ropes?
- muscles can be tested for endurance. How many sit-ups can you do in one minute?
- muscles can be tested for flexibility. How far can you reach beyond your toes when sitting on the floor?

Body management. Emphasis should continue to be placed on basic movement and apparatus activities. However, the exploratory process should change from one which is largely self-initiated to one which is guided by the teacher towards the development of more specific skills. This process cannot be rushed, as it is important at this age level to be success oriented, providing the child with tasks that allow for a variety of solutions. Group lessons should focus on "themes" and not "specific skills." For example, the teacher might present a problem of finding ways to balance, guiding the children towards finding more difficult ways of balancing in relation to their abilities. For some children the balancing activity will be a headstand, for others something simpler.

Primary school pupils should be provided with opportunities to increase their proficiency in basic body management skills learned at the preprimary level.

Experiences. Experiences are basically the same as those in the preprimary program. However, group lessons should focus on "theme" and not on specific skills. Some shift in emphasis will be necessary, depending on the needs and interests of the individuals. Tasks and/or problems may become more complex, and pupils will be expected to increase their proficiency in these experiences. Some sample tasks are given below. Teachers may design other tasks around such themes as:

- balancing. How many parts of your body can you balance on while forming various letters of the alphabet? Can you balance on one hand and one foot? On two hands and one foot? On head and two feet? On head and two hands?
- connecting one movement smoothly to another. Can you fall and roll? Run, then jump? Connect any three movements together without stopping?
- traveling. Can you travel with only your feet touching the floor? Feet and hands only? Hands only? What other parts can you travel on?
- supporting. Can your support yourself on a piece of apparatus using arms only? Feet only? What other parts of your body can support you while on apparatus?
- movement sequences. Can you go over a cone, under a bar, and end in a balance on a mat?

Manipulative skills. Primary school children should be offered opportunities to continue to develop and refine basic manipulative skills learned at the preprimary school level. As the program progresses to the upper primary level, bowling, paddle, and ball activities enter the picture.

Experiences. Manipulative experiences will basically include the same experiences found at the preprimary level. Partner work with manipulative objects, simple ball games and relays may be added. Striking skills are quite relevant at this level. Pupils will be expected to increase their proficiency in these skills.

Tasks may be designed by the teacher around the following items of equipment or ideas:

- a single piece of apparatus, such as a ball, hoop, wand. Can you bounce the ball? High? Low? Fast, then slow? Can you roll the hoop?

- a single piece of apparatus and a partner. Can you perform a series of two, three and four tosses and catches with your partner? On one bounce? Over a wand?
- two or more pieces of apparatus with a partner. Can you roll the hoop while your partner tosses a bean bag through the hoop? Can you count the successful and unsuccessful tosses? Add them together to find the total?
- striking. Can you strike the ball with different parts of your body? Can you count the number of times you punch the ball hard so that it goes high? Now can you subtract the number of times it goes soft and low?
- making up simple games such as the ancient Greeks did for the first Olympic games. Can you and your partner make up a game to play using one or more pieces of hand apparatus?

Rhythms. Rhythmic activities are enjoyed by children of this age as they pass from the "I" to the "we" stage of development. Educational dance continues to play an important part in helping children express their feelings through movement. Children of this age enjoy working with a partner on simple dance themes such as contrasting movements, one being light and one being heavy. Also included in rhythmic activities are all forms of locomotor or nonlocomotor movements, identification rhythms, dramatization and singing games and dances.

Primary school children should be provided with opportunities to continue to develop and refine basic rhythmic skills learned at the preprimary level.

Experiences. Rhythmic experiences will include basically the same experiences found in the preprimary program. However, children of this age level will work more with a partner. Some shift in emphasis will take place depending on the needs and interest of the pupils. Such aerobic activities as rope jumping, musical games and simple folk dances may be added. Emphasis should continue to be placed on basic fundamentals such as walking, hopping, jumping, skipping and others.

Tasks may be designed by the teacher around the following themes:

- contrasting movements with or without partners. With a partner, can you do something that shows one is strong and the other is weak?
- movement to rhythm instruments. Can you travel to this beat (fast, slow, medium)? Can you turn from high to low to this beat (fast, slow, medium)?
- rhythmic jump rope with or without music. Can you jump to a rhythm which you devised?
- imitation. Can you imitate an animal or object and move appropriately?
- simple folk dances appropriate to this age level.

Apparatus, stunts and tumbling. Emphasis on these activities should continue. However, the exploratory approach should change from one which is self-initiated to one which is guided by the teacher toward the development of more specific skills.

Primary school children should also be provided with opportunities to continue to develop and refine basic apparatus, stunts and tumbling skills learned at the preprimary school level. The safe use of equipment and safety aspects of tumbling should be stressed.

Experiences. Basically these experiences will be the same as the apparatus, stunts and tumbling experiences in the preprimary program. Emphasis at this level should be on simple partner stunts. Activities such as the three point tip-up, backward curl, forward roll variations, frog handstand and headstand may be added at this level. Pupils will continue to be provided opportunities to increase their proficiency in activities learned at the previous level.

Some sample tasks and/or problems follow. Others may be designed by the teacher around such action as:

- swing and jump. Can you swing and jump? Add half and full turns?
- climb. How high can you climb up the rope? How fast? How many ways?
- roll. Can you do a forward roll? Backward roll and sideward roll in a sequence?
- imitate an animal. Can you read a cue card and do what it says—walk like the turtle? Bear? Gorilla?
- pull your body. Can you pull your body along the bench while lying on your stomach? While lying on your back?

NINE-, TEN- AND 11-YEAR-OLD CHILDREN

The intermediate school program should provide opportunities for pupils to develop a higher degree of proficiency in basic skills and to begin to synthesize those skills which are involved in increasingly complicated games, dances and gymnastics. As a result of these experiences, pupils should become more capable of applying the basic skills they have learned to more complex activities and to do so with greater efficiency and creativity. In addition to the regular instructional program, an intramural program should be provided.

Characteristics

Growth changes from slow and steady to fairly rapid. Height and weight increases may be faster in girls than in boys. Some children experience adolescent growth spurts in which there is a rapid growth of arms and legs. Secondary sex characteristics may begin to appear. Girls are usually a year ahead of boys in physical maturity and development. Muscular strength is not equal to growth. The size of the heart and lungs is in proportion to height and weight. The brain grows rapidly at this time. The growth process of each individual is peculiar to her/his own time pattern and growth cycle.

Coordination is good and reaction time is improving. The children take great pride in physical performance. Some children may appear to be awkward due to rapid growth spurts. A marked maturation of motor skills occurs. Ball handling skills increase and there is a better balance and footwork in kicking skills.

The children seek a balance between self and others; they display a spirit of independence but still want guidance and affection. They are more responsible, need to succeed, enjoy competition and develop group loyalties. The children are beginning to develop insight into the emotions of others.

The attention span lengthens and the children are able to carry on discussions and activities in a group setting.

Needs, interests and program implications

The needs and interests of nine-, ten- and 11-year-olds include daily, vigorous, fast-moving activities; a review of previously learned skills; the development of higher degrees of skill; a chance to experience success; an opportunity to belong to a group, and a chance to draw relationships between activities and physical fitness and between activities and career choices.

A program designed to meet these needs should include activities which provide for the development of strength and endurance, increased levels of skill, a refinement of coordination and form and postural correction. The program should include lead-up games; rhythmic activities; activities involving running, jumping, throwing, catching, kicking and striking; large apparatus activities and aquatics, if facilities are available.

Provision should be made for activities involving partners, team play and problem-solving experiences. The children need to expand their understanding of what the body can do and how the body can move. They should begin to analyze simple scientific principles which are related to physical fitness and sports skills and to apply those principles to activities. Many children are involved in community youth sports. In addition, the children should begin to see the many possibilities of sport-related career choices.

Teaching philosophy

The intermediate school physical education instructional program should be built upon the foundation of skills, knowledges and attitudes acquired at the preprimary and primary levels. Opportunities should be provided for pupils to develop more precise movement skills to be used at the lower secondary level.

Emphasis should be placed on body management, manipulative skills, rhythms, stunts and apparatus, aquatics, lead-up games and developmental activities. Basic scientific principles should be incorporated throughout the program, particularly in the teaching of skills and fitness activities.

The intermediate program should provide opportunities for the pupils to develop a higher degree of mastery of basic movement skills and to begin to synthesize those basic skills which are involved in increasingly complicated games, dances and gymnastics. As a result, pupils should become increasingly capable of applying these basic skills to complex tasks more efficiently, effectively and creatively.

Learning outcomes

The following learning outcomes are not intended as state standards or as a comprehensive listing but rather as examples for school districts to utilize in developing outcomes.

Health-related physical fitness. The pupil will develop a level of fitness so that, when given the American Alliance for Health, Physical Education, Recreation and Dance Health-Related Fitness Test, he/she will equal or exceed the 50th percentile.

Body management. When presented with a body management task involving proper landings, the pupil will execute the task correctly by landing and staying in place by bending the knees.

Manipulative skills. When presented with a manipulative problem involving dribbling a ball, the pupil will dribble a ball with the preferred hand continuously for fifteen seconds.

Rhythms. When presented with a rhythmic task involving mirroring activities to music, the pupil will execute the task correctly by copying the movements of another to music.

Apparatus, stunts and tumbling. When presented with an apparatus task involving use of climbing ropes, the pupil will solve the problem by climbing up one rope to a height of ten feet, transferring to another and descending.

Lead-up game skills. When required to shoot a basketball at the goal, the pupil will do so with 50 percent accuracy.

Learning outcomes of both a cognitive and an affective nature can also be identified.

Cognitive. The pupil will identify correctly in writing ten sports-related career options.

Affective. The pupil will enhance her/his self-concept as demonstrated by his/her ability to assist less skilled individuals through a reciprocal learning task.

Desirable experiences

Activities for this age level are an extension of earlier experiences with emphasis on skill development.

Health-related physical fitness. Fitness activities should continue to be incorporated into all aspects of the program. The children will begin to display a greater curiosity about the relationship of physical fitness to their own bodies. Children identified as less physically able need additional help.

Experiences. Bending, stretching, strength and endurance activities should be continued. Fitness vocabulary and simple fitness principles should be introduced into learning experiences.

The teacher should provide opportunities for the students to:

- assess their pulse rate after exercise and relate it to a resting pulse rate;
- progress at an individual rate in the development of arm and shoulder strength;
- assess their degree of flexibility as demonstrated in the American Alliance

for Health, Physical Education, Recreation and Dance's health-related fitness test, and
- discuss the meaning of body composition.

Body management. Intermediate school children should be provided with opportunities to continue to develop and refine body management skills. As the children mature they should become more competent in the management of their bodies and should begin to acquire useful physical skills.

Work in basic movement and apparatus activity should not be neglected with this age group, for it is through skillful manipulation of the body that children are provided with the tools for being successful in all areas of physical education.

Opportunities should be provided for students to develop the ability to combine tumbling and dance or rhythmic movement to form sequences suitable and adaptable for free exercise.

The teacher should continue to guide the exploratory process toward the students' development of more refined and specific skills.

Experiences. Students continue basically the same experiences found in the primary program; however, increased emphasis will be placed on guiding the child toward more difficult and challenging solutions as well as more proficient performances.

A few ideas relating to tasks which may be designed by the teacher are:

- general tasks involving many of the previous movement lessons of the primary grades such as ways of balancing, curling and stretching, rocking and rolling, etc., with increased emphasis on guiding the children toward more difficult and challenging solutions to tasks presented them;
- specific tasks involving stunts and tumbling, focusing on the movement aspects of performing the stunts such as curling when rolling and stretching when balancing;
- all forms of gymnastic activities with apparatus such as bars, beams and vaulting boxes;
- various forms of flight. Flight gives children sufficient time in the air which is necessary to perform certain skills whether it be jumping to catch a ball, high jumping in track, somersaulting in the air, or merely leaping or jumping and forming various shapes in the air. Flight may be obtained by jumping from the floor or off some piece of apparatus such as a box.
- proper landings. Landing and staying in place by regaining balance through bending the knees; landing off balance, collapsing and rolling; jumping into the air and landing on something while staying in balance; connecting landings to other movements such as running, jumping, landing and rolling. These activities provide experience in absorbing force effectively.

Manipulative skills. Intermediate school children should continue to be provided with opportunities to develop, refine and master manipulative skills. The bulk of movement emphasis is concentrated on manipulative activity. As the program progresses to the upper intermediate level, pupils should develop the ability to apply manipulative skills already learned to more complex lead-up and game-type activities.

Experiences. The program should be composed of basically the same manipulative experiences found at the upper primary level. The emphasis is on understanding simple scientific principles related to manipulative skills, skillful manipulation of objects and the ability to transfer learned skills that are appropriate and applicable to more complex activities.

Tasks and/or problems, such as these suggested below, may be designed by the teacher:

- ball task. Can you dribble the ball with the left hand? Alternate hands?
- shooting baskets. How does the arm act as a lever when shooting a basket?
- volleying. Working with a partner, how many successful volleys can you do? Working with three others, how many successful volleys can you do?
- balancing bean bags. Can you walk while balancing a bean bag on your head? On other parts of the body?
- tossing and catching. Can you toss a ball with one hand and catch it with the other hand? Catch it with two hands?
- hitting. Can you hit a softball with a bat? From the right side? From the left side?
- career awareness. What manipulative skills are necessary to perform the jobs of a carpenter, truck driver, construction worker, policeman?

Rhythms. Experiences in educational dance can lend much to the movement program at this level. Children of this age are better able to respond to a beat and to coordinate their movement to music.

Traditional folk and square dance can be successful at this age level. The teacher should establish the right social environment by helping the students to concentrate on the skills to be learned.

Experiences. Upper primary level rhythmic experiences continue as new ones are added. Lead-up types of dances, mixers and rope jumping make up the bulk of the program with some inclusion of musical games and fundamental rhythm activities of the manipulative type.

Suggested tasks or ideas which the teacher may wish to develop are:

- such educational dance themes as meeting and parting, passing and following;
- mirroring activities in which one child tries to copy the exact movements of another;
- folk and square dances appropriate for the age level of the class, and
- rope jumping and roller skating alone, with partners or in small groups, and ball skills to music. Also included in these activities can be stick dances, such as tinikling, and parachute activities to music.

Apparatus, stunts and tumbling. There is little change in the amount of emphasis placed on apparatus, stunts and tumbling except to make the tasks more challenging and more difficult to achieve. More emphasis is placed on form and execution. The safe use of apparatus and safety and executing tumbling activities should be stressed.

Intermediate school children should be provided with opportunities to continue to develop, refine and master apparatus, stunts, and tumbling skills learned at the previous levels.

Experiences. Experiences will include some of the activities from the upper primary program. Experiences which should be added include forward roll combinations, backward roll combinations, knee jump to standing, headstand variations, back extension, handstand, cartwheel, headspring, dive forward roll, forearm stand.

Tasks and/or problems may be designed by the teacher around such ideas as:

- traveling carrying an object. Can you travel the length of the horizontal ladder carrying a bean bag, ball or any other similar object?
- stunts and tumbling sequence. Can you perform any three stunts and/or tumbling activities in succession? Four? Five? Six?
- center of gravity. What is your center of gravity? How does this relate to performance on the horizontal bar and the balance beam?
- apparatus sequence. What activities can you perform on the horizontal bar? Balance beam? Climbing rope?
- climbing ropes. Can you climb up one rope, transfer to another and descend? Climb both ropes together?
- working with a partner. What can you do with a partner on the parallel bars?

Lead-up game skills. Participation in team sports appeals strongly to children at the intermediate level. They need an opportunity to develop the necessary skills for successful participation in team sports. Therefore, a comprehensive program of lead-up games and an introduction to track and field experiences are necessary. Through participating in lead-up oriented activities, children have an opportunity to refine their manipulative and other movement skills and apply them to more specific as well as more complex lead-up game activities.

Intermediate school pupils should have opportunities to develop and refine lead-up game skills. Offensive and defensive play along with rules should be added to the skill base. Such a base facilitates the learning of more complex games at the lower secondary level.

Equipment and supplies used in teaching lead-up game experiences should be appropriate for the age levels involved.

Experiences. Among lead-up game activities are captain basketball, sideline basketball, twenty-one, five-three-one and basketball, keepaway, football, end ball, soccer keepaway, line soccer, circle soccer, four-base softball, beatball, newcomb, wall volley, one-bounce volleyball, cage volleyball, relays, striding for distance, long jump, hurdling, floor hockey, hocker, roller skating and the "new games."[7]

The teacher should provide opportunities for the pupils to:

- select and organize teams and play a variety of lead-up games;
- play different positions in the lead-up games;
- select and organize teams and play cooperative games;
- participate in appropriate individual activities;
- apply the principles of levers, force and gravity to various activities, and
- identify activities which lead to career possibilities.

12- AND 13-YEAR-OLD CHILDREN

The lower secondary school program provides a chance for review and application of all basic skills. It should be comprehensive enough to expose pupils to a broad and diversified program of activities in all physical education instructional areas. Students should be given opportunities to develop degrees of proficiency in all of the instructional areas as well as opportunities to participate in intramural, extramural and interscholastic activities.

Characteristics

This is a period of rapid growth. There is an increase in muscular strength, heart size and stroke volume. Girls reach a high point of accelerated growth with manifestations of sexual development one or two years earlier than boys. Some boys reach sexual maturity during these years. Post-pubescent boys, due to rapid muscular growth, are stronger than pubescent boys. Girls attain their peak fitness performance at this age.

Motor and skill development improves steadily. At this age some girls may be more skilled in motor activities than boys.

Social approval is a powerful influence on behavior. The children have a need for group membership and peer acceptance.

There is evidence of steady increase in the ability to reason and to solve problems. Motivation for intellectual development frequently lies in the usefulness of specific learning. Extended periods of concentration are met with difficulty.

Needs, interests and program implications

The young people require knowledge and assurance about the physical changes they will be undergoing. Daily activity periods are needed with instruction in more complex skills, body mechanics and fitness activities.

Due to the range in physical maturity of the children, programs must be developed to meet individual needs. Teachers should be alert for symptoms of fatigue and should make provisions for equating individuals and groups in competitive activities.

Students should be allowed to explore a variety of activities. The importance of activity to the well-being of each student should be highlighted. Cooperation, sportsmanship, competition, teamplay, leadership and followership should be stressed.

Teaching philosophy

The lower secondary school instructional program should be a required program that includes review and application of previously learned movement skills and exposure to broad and diversified activities in all areas of physical education. Experiences should be planned to meet the divergent developmental needs of all pupils—the gifted, the average, the slow learner and the handicapped. Pupils may be grouped randomly for instruction or by skill ability or needs and interests.

The program should provide opportunities for pupils to acquire the skills, knowledges and attitudes necessary for successful participation in a variety of activities. As a result, pupils should be able to participate in those activities they enjoy most, in which they experience the greatest success and which they may wish to pursue further in their leisure time and later in secondary school. In addition, pupils should begin to understand the role of sport in our society as it relates to career options.

All pupils should be offered voluntary enrichment experiences in the extra-class component of the program.

Learning outcomes

The following learning outcomes are not intended as state standards or as a comprehensive listing but rather as examples for school districts to utilize in developing outcomes.

Health-related physical fitness. When required to take the American Alliance of Health, Physical Education, Recreation and Dance youth fitness test and health-related physical fitness test, the pupil will score at or above the fiftieth percentile norm.

Aquatics (when facilities are available). When required to demonstrate the 25-yard flutter kick with a kickboard, the pupil will execute the task by traveling in a straight line and by using proper form.

Dance. When required to demonstrate the polka step, the pupil will execute the task correctly by stepping and hopping in the proper sequence to a musical beat.

Individual and dual activities. When required to demonstrate that a moving body-mass exerts a greater force than a stationary body-mass, the pupil will explain the principle correctly and demonstrate its application by standing and jumping, running and jumping or by striking an object with and without back-swing.

Team sports. When required to demonstrate the bunt in softball, the pupil will execute two out of six bunt attempts successfully.

Learning outcomes of both a cognitive and an affective nature can also be identified.

Cognitive. The pupil will demonstrate an understanding of the metric measurements used in the Olympic games.

Affective. The pupil will demonstrate a positive perception of self as measured by teachers' behavioral rating scales.

Desirable experiences

Activities for this age level should be designed to introduce students to a variety of activities. Exploring and experiencing many sports and games should help students to make knowledgeable decisions about activities which meet their individual needs.

Health-related physical fitness. The habit of adequate and regular exercise during the formative years is very important in developing a lifelong responsibility for maintaining high levels of physical fitness. Teachers should provide pupils with opportunities to understand fitness principles and to become accustomed to maintaining a high degree of physical fitness.

Pupils identified as less fit physically should receive individual help to improve their physical capacity.

Health-related physical fitness activities should include calculating the rate of oxygen consumption, determining the pulse recovery rate after exercise, determining lean body weight, assessing flexibility, assessing strength and endurance, weight training, jogging, rope climbing, developmental exercises, jumping rope, circuit training and postural exercises.

Aquatics. When facilities are readily available (use of community facilities should be considered), lower secondary school pupils should be exposed to a broad and varied program of aquatic experiences. These experiences should include swimming fundamentals, water safety, diving, water games, water stunts, synchronized swimming and simple lifesaving skills.

Dance. Fundamental skills in dance should be further developed and used in recreational settings, for leisure and relaxation. Opportunities for recreational dance experiences should be provided. As current dance steps become popular, they should be included in the unit. Dance experiences should include aerobic dance, ballet, folk dance, fundamental rhythms, jazz dance, modern dance, social dance, and square dance. For a more detailed description of a dance program, refer to the Connecticut State Department of Education's *A Guide to Curriculum Development in the Arts.*

Individual and dual activities. Emphasis should be placed on the development of basic skills for the activity and on experiencing the sport as a whole. Activity units should include an understanding of safe participation and basic scientific principles which apply. The units should be of brief duration to allow time to cover many varied activities.

Individual activities may include archery, bowling, canoeing, fly and bait casting, golf, gymnastics, ice skating, jogging, outdoor education, roller skating, skiing, track and field, and tumbling.

Dual activities may include badminton, deck tennis, frisbee, handball, horseshoe pitching, "new games," paddle ball, paddle tennis, pickle ball,[8] shuffle board, squash racquets, stunts, table tennis, tennis, and wrestling.

Team sports. Pupils should be exposed to a broad and varied program of team sports. Playing the game safely, experiencing the sport as a whole and experiencing play at all positions are important. Development of team play is a very important aspect of the program.

Team sports may include basketball, field hockey, floor hockey, hocker, ice hockey, "new games," soccer, speedball, speed-a-way, softball, touch or flag football and volleyball.

14- AND 15-YEAR-OLD STUDENTS

On the middle secondary level the students should be provided with opportunities to refine the skills and reinforce the knowledge learned at the previous levels as well as to develop more effective strategies. Within the required program, students might begin to select activities according to personal interests and to develop higher degrees of proficiency in them.

Characteristics

During this period growth tends to peak for girls. Some girls reach their adult height, while boys experience high acceleration in growth. Strength continues to increase, but girls do not have the muscular capacity for strength that boys have. By the end of the middle secondary school period practically all girls and a number of boys reach sexual maturity.

Coordination and balance improve. As they advance in age, boys improve rapidly in motor skills; girls improve slightly or, in some cases, decline. Excelling in motor skills allows some students to find social acceptance and security. Fitness performance by girls tends to decline at this age while fitness performance by boys continues to increase steadily.

The students are concerned with physical appearance. Boys begin to take pride in the build of their bodies and girls are proud of posture and figure control. Most adolescents at this age are concerned when they deviate from the "norm" in behavior and appearance.

Loyalties to groups and teams continue to be strong. The ability to reason and solve more complex problems continues to increase; however, self-centeredness sometimes allows emotional involvement to interfere.

Needs, interests and program implications

The students need to be given knowledge and understanding of the physical changes they are undergoing. Activities should be selected and adjusted and students should be grouped for instruction based on their skill ability, needs and interests.

Due to the downward trend in fitness performance reported for girls beginning at this age and the increased interest in body conditioning on the part of boys, fitness and conditioning programs should be stressed.

Daily activity periods with instruction in body mechanics and skills should continue. A broad and diversified program of dance and sports activities should be presented, allowing the students to explore new activities and to refine and master the skills of familiar activities.

A strong extraclass program of games, sports and dance should be offered.

Teaching philosophy

The middle secondary school physical education instructional program should be a required program. Pupils may select activities from within the required program. However, they must select at least one activity from each designated instructional area. Examples of instructional areas are aquatics, individual sports, lifetime sports, rhythmic and team sports.

The middle secondary program should continue to be broad and diversified. Experiences should be geared to meet the divergent developmental needs of all pupils—the gifted, the average, the slow learner and the handicapped. Pupils may be grouped for instruction randomly, by skill ability or on the basis of their needs and interests.

Pupils should have opportunities to develop greater proficiency in a variety of skills and to reinforce knowledges, attitudes and strategies learned previously. Opportunities should be provided for pupils to select activities from within the required program. They should begin to specialize in activities they enjoy most and in which they experience the greatest success. Teachers should begin to introduce lifetime activities and outdoor activities and help them assume responsibility for their own physical well-being.

Learning outcomes

The following learning outcomes are not intended as state standards or as a comprehensive listing but rather as examples for school districts to utilize in developing outcomes.

Health-related physical fitness. When required to demonstrate an understanding of one's cardiorespiratory fitness level, the pupil will explain the meaning of oxygen consumption, will execute a test for cardiorespiratory fitness and will convert the results of the test into the oxygen consumption rate.

Aquatics (when facilities are available). When required to demonstrate the back crawl, the pupil will execute the task by swimming continuously in a straight line for 25 yards using the proper form.

Dance. When required to demonstrate the cha-cha, the pupil will execute cha-cha dance patterns with proficiency.

Individual and dual activities. When required to demonstrate the drop shot in badminton, the pupil will execute two out of four shots correctly.

Outdoor education. When required to demonstrate orienteering skills, the pupil will demonstrate his/her ability to read a compass and follow compass-heading instructions by navigating correctly to three prearranged check points.

Team sports. When required to demonstrate the basketball driving lay-up shot, the pupil will place the ball in the basket successfully three out of five times.

Demonstrations of cognitive and affective learning achievements also can be measured.

Cognitive. The pupil will explain and demonstrate correct spotting techniques to prevent injury in designated gymnastic activities.

Affective. The pupil will respond positively toward physical activity as measured by the teachers' attitude inventory scale.

Desirable experiences

Activities include the refinement of selected skills learned at the previous level.

Health-related physical fitness. Students should continue to develop and maintain optimal levels of fitness. Each student should be progressing at an individual rate toward the improvement of her/his fitness level. Opportunities for fitness activities should be provided as a part of every activity class.

Health-related physical fitness activities should include instruction in the components and principles of fitness, weight training, jogging, stretching exercises, instruction in proper nutrition and rest, developmental exercises, circuit training, obstacle courses, exercise trails and rope jumping.

Aquatics. When facilities are available (use of community facilities should be considered), a broad and varied program of aquatic experiences should be continued, adding to previously acquired skills. Aquatic experiences should include instruction in intermediate or above swimming strokes, relays, competitive techniques such as starts and turns, swimnastics, diving, water games, synchronized swimming and lifesaving skills.

Dance. Opportunities should be provided to improve and refine dance and other rhythmical skills. Reinforcement of knowledges, attitudes, and techniques should be a vital part of the unit. Current popular dance steps should be included in the unit. Dance experiences should include ballet, folk dance, jazz dance, modern dance, square dance, and social dance. (See also *A Guide to Curriculum Development in the Arts.*)

Individual and dual activities. The beginning of specialization in the selection of individual and dual activities should occur at this level. Pupils should develop a deeper understanding of and an appreciation for various sports as they relate to participants' well-being. Safe participation and, in the case of gymnastics, special spotting techniques to avoid injury should be stressed. Individual and dual activities may include archery, badminton, bicycling, bowling, fly and bait casting, gymnastics, golf, handball, horseshoe pitching, ice skating, jogging, "new games," paddle ball, paddle tennis, pickle ball, roller skating, shuffleboard, skiing, squash racquets, tennis, track and field activities and tumbling.

Outdoor education. A program in outdoor education skills adds diversity to the physical education offerings and helps to meet the needs of students who enjoy cooperative, self-paced activities. Outdoor education activities may include adventure programs,[9] bicycling, camping skills, canoeing, fitness trails, hiking, orienteering, rappelling, and a ropes course. (For an example of a fitness trail, see Appendix F.)

Team sports. Emphasis should be placed on developing and refining intermediate or advanced skills and reinforcing knowledge, attitudes and techniques. Specialization in the selection of team sports should be a part of this program. Pupils should learn to develop and apply the appropriate strategy to game situations. They should also develop a better understanding and appreciation for team activities both as participants and as spectators.

Team sport activities may include basketball, field hockey, floor hockey, hocker, ice hockey, Korfball,[10] lacrosse, "new games," soccer, softball, speedball, speed-a-way, team handball, touch or flag football, and volleyball.

16-, 17- AND 18-YEAR OLD STUDENTS

On the upper secondary level emphasis should be placed on lifetime activities with some team sports and dance activities provided.

There should be opportunities for elective learning experiences within the required program and students should be provided with opportunities to further refine and naturalize selected skills.

Such a comprehensive program should develop the necessary skills which can be employed in an intramural, interscholastic, as well as a personal, recreational program for all girls and boys.

Characteristics

During this period most girls attain their maximum growth and height. Boys attain or come close to attaining maximum growth. Some boys reach adult height at age 16 while others continue their growth to ages 19 or 20. Boys continue to increase in muscular strength. In both sexes, the heart reaches its maximum size. In most instances, the puberty cycle ends and secondary sex characteristics have completed their development.

Motor skills and motor coordination improve with practice.

Feelings about sexuality and physical appearance play important roles. The students show interest in assuming adult behavior and seek greater independence. Conformity to the school social structure continues to be important; however, some students display an independent rather than a conforming attitude.

There is little, if any, increase in mental power and acuity. Most youth during this period are more capable of learning abstractions than they were at an earlier age. There is an increase in ability to gain insight into problems and to form generalizations.

Needs, interests and program implications

Daily activity should be required to maintain and improve physical fitness. Care should be taken in the selection and teaching of activities to maintain student interest. Expanded opportunities for participation in many types of activities should be offered. Students should be allowed to make choices about the activities they want to pursue. Emphasis, however, should be placed on lifetime activities and on the importance of being active throughout life. It is important for students to develop positive attitudes toward activity.

Individual help should be given to those students who score low on fitness tests to help them to increase their fitness capacity.

Opportunities should be given to those gifted with good motor performance to further improve through a strong program of interscholastic sports. Such a program should be balanced with an equally strong program of intramurals for those who desire to participate.

Students, at this level, may need motivation in their physical education class work. They should be allowed to elect activities within a required program. The activities should stimulate students to do their own thinking and should challenge them to acquire an understanding of complex game strategies and scientific principles of fitness and human performance.

Teaching philosophy

The upper secondary school physical education program should be a required program, within which pupils may select activities in which they wish to specialize. Knowledges and strategies related to the selected activities should be taught in depth and pupils should be developing a high degree of proficiency and mastery. Opportunities should be provided for independent study and contract learning. The program should consist of lifetime-oriented activities as well as a balance of experiences from all physical education instructional areas.

Experiences need to be well-planned and geared to meet the divergent developmental needs of all pupils, including the gifted, the slow learner and the handicapped.

By the end of this program, students should be able to perform on an advanced level in several instructional areas.

Learning outcomes

The following learning outcomes are not intended as state standards or as a comprehensive listing but rather as examples for school districts to utilize in developing outcomes.

Health-related physical fitness. When required to take the American Alliance for Health, Physical Education, Recreation and Dance Health-Related Fitness Test, the pupil will score at or above the fiftieth percentile.

Aquatics (when facilities are available). When required to demonstrate the breaststroke, the pupil will execute the task by swimming continuously for 50 yards using the proper form.

Dance. When required to demonstrate a modern dance movement within the framework of the assignment, the pupil will perform an eight-step pattern with proficiency.

Individual and dual activities. When required to demonstrate a tennis serve, the pupil will execute the overhead serve correctly by placing seven out of ten balls in the proper serving court.

Outdoor education. The pupil will demonstrate his/her knowledge of local hiking trails, backpacking techniques, procedures and safety precautions by achieving a passing grade on a teacher-developed test.

Team sports. When required to demonstrate a soccer corner kick, the pupil will hit a prearranged target in the area of the goal four out of eight tries.

Specific evidence of both cognitive and affective learning can also be given.

Cognitive. When required to demonstrate that he/she is physically educated, the pupil will achieve a passing grade on a physical education knowledge test.

Affective. The pupil will make positive decisions about physical activity as indicated by the pupil's self-initiated out-of-school weekly activity schedule.

Desirable experiences

Activities for this age group emphasize individual choices and lifetime skills.

Health-related physical fitness. The physical fitness program should continue to provide opportunities for students to develop and maintain optimal levels of fitness. Emphasis should be placed on the importance of lifelong fitness and on the many resources, public and private, available for helping to contribute to individual well-being. Nutritional components should be stressed in terms of proper food and proper amounts of food.

Health-related physical fitness activities should include instruction in human performance and physical assessment, basic exercises, circuit training, fitness trails, jogging, rope jumping, slimnastics and weight training.

Aquatics. When facilities are available, a diversified program of aquatic experiences should be continued. The contribution of aquatic activities to lifelong fitness should be stressed. If a school has no swimming pool, use of community facilities may be an alternative.

Desirable aquatic experiences include advanced swimming strokes, diving, drown proofing, lifesaving, scuba diving, swimnastics, synchronized swimming water games and water safety.

Dance. Emphasis should be placed on improving and refining dance and other rhythmical skills learned at previous levels. Opportunities should be provided for creativity and composition. Reinforcement of knowledges, attitudes and techniques should be a vital component of the unit. Current popular dance steps should be included in the unit. Aerobic dance, ballet, folk dance, jazz dance, modern dance, social dance and square dance are appropriate.

For a more complete description of a comprehensive dance program, refer to the Connecticut State Department of Education's *A Guide to Curriculum Development in the Arts*.

Individual and dual activities. Emphasis should be placed on improving and refining selected individual and dual skills and the acquisition and reinforcement of knowledges, attitudes and techniques. Pupils should specialize in lifetime-oriented activities of a relatively vigorous and nonvigorous nature. This program should provide students with opportunities to develop more complete techniques and skills in sports for adult life.

Individual and dual experiences may include archery, badminton, bicycling, bowling, deck tennis, fencing, fly and bait casting, golf, gymnastics, handball, horseshoe pitching, ice skating, jogging, judo, karate, paddle ball, paddle tennis, roller skating, shuffleboard, skiing, squash racquets, stunts, table tennis and tennis.

Outdoor education. The program should continue to provide instruction in outdoor skills. Emphasis should be placed on the importance of these skills to lifelong activity.

Outdoor education activities may include adventure programs, bicycling, camping skills, canoeing, fitness trails, hiking, rappelling, sailing and trail riding.

Team sports. Pupils should attempt to maximize their proficiency in a selected number of team sports and acquire and reinforce knowledges, attitudes and techniques. Pupils should experience competition in a selected team sport as well as officiate team sport activities.

Team sport experiences should include basketball, field hockey, global ball,[11] hocker, ice hockey, lacrosse, soccer, softball, speedball, speed-a-way, team handball, touch or flag football, ultimate frisbee and volleyball.

5 Teaching Approaches

When developing a physical education curriculum, the committee needs to keep in mind the roles that both the physical education and classroom teachers will play in implementation. A certified physical education teacher fulfills the role of specialist. As a specialist, he/she should communicate directly with classroom teachers for the purpose of determining individual student needs, coordinating interdisciplinary concepts and activities and, in some instances, providing classroom teachers with information and ideas for follow-up lessons.

In addition to working with classroom teachers, physical educators should attempt to coordinate programs with other specialists. Psychologists can help to design activities for students with special needs. Reading specialists can provide a wealth of concepts which can be reinforced through movement activities. Media specialists can develop and supply print and nonprint materials which will supplement instruction.

Whether the physical education teacher is working with students or with teachers, a variety of teaching styles and instructional methods should be employed. A variety of styles and methods provide alternative approaches to both teaching and learning. Alternative approaches can help students increase their capacity for decision making about physical activity and assist the teacher in individualizing the program and fulfilling the program objectives.

In the past, physical educators, in their teaching, tended to use teacher commands. The teacher would give verbal instructions; the student would listen and respond accordingly. Although this command style can accomplish specific purposes, other teaching styles also should be utilized to better serve today's students.

Since the passage of Title IX of the Education Amendments of 1972 and P.L. 94-142, the Education of All Handicapped Children Act, students of both sexes and those handicapped students who are able to participate to their benefit are taught in the same classes. In most instances, these classes are comprised of students with a wide range of skill abilities. To meet their needs, a variety of teaching styles must be employed.

Common teaching styles

Three commonly accepted teaching styles are teacher-oriented, teacher/learner-oriented and learner-oriented.

Teacher-oriented or teacher-initiated. This style features the teacher as central to the learning situation. The teacher-dominated style may be helpful when learning a specific objective such as a safety procedure or a specific fitness exercise. The military or command style is an example of teacher-oriented teaching.

Teacher/learner-oriented. This style features a cooperative effort on the part of the teacher and the learner. It involves the student in the learning process by encouraging some problem solving and creative responses. Task stations, small groups and reciprocal approaches are examples of the teacher-learner style.

The task-station approach involves setting up various tasks at a number of teaching stations. The teacher may demonstrate the tasks to be accomplished, but the students are responsible for learning them.

The small-group approach involves dividing the class into smaller units and assigning a task or a problem to each unit. The groups must then accomplish the task or solve the problem.

The reciprocal teaching style involves the learner in the teaching process. Learners are assigned partners. The partners then teach each other various tasks.

Learner-oriented or learner-initiated. This style features the learner as central to the learning situation. It involves the student in decision making. Problem solving and independent planning are examples of the learner-oriented style.

In problem solving, the teacher serves as a resource person providing numerous experiences which require the learner to make decisions. For example, the teacher may ask the students to demonstrate two ways to mount the balance beam and the parallel bars. The students then must solve the problems. Some students may ask for help and the teacher may suggest various loop films, textbooks and similar resources as aids.

Independent planning also requires the teacher to act as a resource person. The learner makes decisions about planning and conducting his or her own learning experiences. Contracts are developed as a basis for evaluation.

Instructional methods

Each of the three teaching styles allows for the use of a variety of instructional strategies. A number of them are described below.

Movement education. Movement education focuses on the analysis of movement through the components of time, force, space and flow.

The use of movement as an instructional strategy requires the teacher to analyze movement, recognize individual differences in children's movement capabilities, and provide tasks to meet individual needs. The learning environment is free of rigid regimentation. Emphasis is placed on purposeful effort in finding solutions to problems and tasks. An example of a movement education lesson can be found in Appendix G.

Outdoor adventure programs. This instructional strategy focuses on the concept of self, stressing that people react in accordance with individual self-perceptions. This approach integrates academic areas with the physical education curriculum to offer students a wide variety of active experiences. Students must be willing to take risks, to experiment and to learn in an atmosphere of mutual support and cooperation. The goals of adventure programs are to increase the participant's sense of personal confidence, to increase mutual support within a group, to develop an increased level of agility and physical coordination, to increase joy in one's physical self and in being with others and to develop familiarity and identification with the natural world. For additional information, contact Project Adventure, Hamilton-Wenham Regional High School, Hamilton, MA.

Multidisciplinary approach. This approach requires coordination with other curriculum areas. Concepts which are central to other disciplines are integrated into physical education units or lessons.

Multidisciplinary activities should be incorporated into the physical education program, particularly at the elementary level. Concepts such as geometric forms, color, force, cultural customs, abstract symbols and tempo can be related to physical activity and coordinated with programs in mathematics, art, science, social studies, language arts and music. Health concepts which relate to organic development should be an integral part of the physical fitness component of the curriculum for grades K–12 (see Appendix H). An example of an interdisciplinary approach using the theme of olympic idealism can be found in the United States Olympic Committee's publication *The Olympics: An Educational Opportunity.*[12]

Team teaching. A team-teaching strategy with two or more teachers sharing responsibility for a combined class works well for teaching any physical activities. One teacher may lead the class in fitness exercises and a review of the previous lesson and the other teacher may introduce a new skill. This method allows for efficient use of a teacher's strongest attributes and assets.

Use of media. All forms of media are important to a good physical education program. Books and periodicals will serve to supplement lessons and provide students and teachers with recent research findings and updated information. Nonprint material such as transparencies, slides, videocassettes, films and film loops can be used to reinforce principles and concepts and serve as visual demonstrators. The use of various forms of media will help to motivate students and to encourage independent study. Microcomputers can be used to assess individual and group fitness levels.

Various teaching styles and instructional methods convey important messages to students. For individual students, one teaching style may be more conducive to learning than another. In a particular learning situation, some instructional methods may enhance learning more than others.

The curriculum should have sufficient flexibility built into it to allow teachers to adjust style and strategy to each learning situation.

Evaluating Results 6

In the ongoing process of curriculum development, the purpose of evaluation is to provide information on the effectiveness of the curriculum toward meeting program goals and objectives. With the improvement of instruction as the main purpose, evaluation serves as a means to an end and not an end in itself.

A detailed account of the purposes of evaluation and methods for assessing the overall curriculum process can be found in the Connecticut State Board of Education's publication entitled, *A Guide to Curriculum Development: Purposes, Practices and Procedures*. The chapter which follows deals with the application of evaluation to physical education programs.

Four major goal areas—organic development (health-related physical fitness), psychomotor development (motor skills), cognitive development (knowledges and understandings), and affective development (feelings) and corresponding objectives—have been discussed in Chapter 1. In bridging the gap between the product, a physically-educated person, and the process, instructional interventions used by the professional physical educator, it is necessary to include strategies which fulfill objectives for each of the four goal areas. In this way the evaluation process serves a meaningful purpose and is not an end in itself.

After physical education curriculum planners have established goals and objectives and when a program of experiences has been planned to produce desired results, it is necessary to determine the effectiveness in meeting the objectives, the efficiency of the process and the quality of the results.

Evaluation programs which are planned, ongoing and systematic and include grades K–12 will help physical educators to:

- determine student needs;
- determine the status, progress or achievement of students;
- classify students on the basis of functional ability;
- screen or identify strengths and weaknesses (physical fitness and motor skills) for instructional placement;
- assess present levels of performance;
- motivate and guide students to meet their individual needs and interests;
- determine student progress, and
- determine the extent to which program objectives are being met.

Physical educators should view evaluation as a continuous process used to make comparisons with established criteria. In physical education, individual behavioral changes and modifications, such as the ability to perform physical skills, are compared to criteria based on program goals and objectives.

When determining the criteria for evaluation, a number of questions should be considered. These questions should be targeted toward determining whether the students can demonstrate knowledges, skills and attitudes in physical education specific to organic, psychomotor, cognitive and affective development. Some examples follow.

Organic development

- Are the students physically fit?
- Can students develop and maintain an appropriate level of health-related physical fitness?
- Do the students understand the physiological principles of fitness and can they accurately assess their fitness levels?

Psychomotor development

- Have students developed sufficient sports skills to enjoy recreational activities?
- Can students perform activities which will contribute to improvement of their fitness level?
- Have students developed sufficient skills in rhythms, aquatics and survival activities?

Cognitive development

- Can students make knowledgeable decisions about their physical activity?

- Can students explain the basic physiological principles of fitness?
- Do the students understand the vocational opportunities that sports and dance offer in society?

Affective development

- Do the students have sufficient self-confidence in performing physical skills to allow them to utilize those skills in the context of social interaction?
- Are the students voluntarily involved in activity?
- Do the students appreciate the aesthetic qualities of movement?

Selecting measurement techniques

When the criteria have been determined, the techniques to be used for evaluating must be decided. These techniques should make use of measurement procedures which are precise and objective and which generate quantitative data.

Testing to determine whether program objectives for each of the four goal areas have been achieved necessitates the use of a number of health-related physical fitness tests, motor fitness and sport skills tests, knowledge tests, and attitudes and interests tests. These tests represent the most commonly used techniques for measurement and evaluation in physical education. The test examples listed below can be found in the measurement and evaluation texts cited in the bibliography, page 122.

Organic development (health-related physical fitness tests)

AAHPERD Health-Related Fitness Test
Blood Pressure Measurement
Cooper 1.5 Mile Run Test
Cooper 12 Minute Run Test
Fleishman's Physical Fitness Test Battery
Gallagher-Brouha Test for High School Boys/Girls
Harvard Step Test
Kraus-Weber Muscular Endurance Test
Parizkova's Nomogram for Body Composition
Skinfold Assessment of Several Sites for Body Composition
Skubic-Hodgkins Cardiovascular Test for Girls

Psychomotor development (motor skills)

Motor fitness and motor ability tests

AAHPERD Youth Fitness Test
Barrow, Illinois, SEMO, Right Boomerang Agility Tests
Barrow General Motor Ability Test
California Physical Performance Test
Indiana Motor Fitness Test
Iowa-Brace Motor Educability Tests
Jump, Run and Chin-up Test

- Johnson-Methemy Motor Educability Test
- Latchaw Motor Achievement Tests for 4th, 5th, and 6th Graders
- Oregon Motor Fitness Test
- Scott General Motor Ability Test
- Speed and Reaction Time Tests
- Texas Physical Fitness—Motor Ability Test

Sport skills tests

- AAHPERD Sport Skills Tests
- Bowen Golf Putting Test
- Brady Volleyball Test
- Broer-Miller Tennis Test
- Buchanan Speedball Test
- Clevett Golf Putting Test
- Cornish Handball Test
- Dyer Tennis Test
- Fringer Softball Test Battery
- Hyde Archery Test
- Johnson Basketball Test
- Johnson Screening Test for Gymnastics
- Lockhart-McPherson Badminton Test
- Merrifield Ice Hockey Skill Test
- Miller Badminton Wall Volley Test
- Red Cross Progressive Swimming Skills Tests
- Schmithals-French Field Hockey Achievement Test
- Vanderhoff Golf Test
- West-Thorpe Golf Test

Cognitive development (knowledges and understandings)

- Dietz and French Field Hockey Knowledge Test
- Haskins Problem-Solving Test of Sportsmanship
- Hewitt's Comprehensive Tennis Knowledge Test
- Hooks Comprehensive Knowledge Test in P.E. Activities
- Johnson-Garcia Objective Knowledge Test for Fitness
- McGee Golf Knowledge Test for High School Girls
- Mood's Test of Physical Fitness Knowledge
- Physical Education Cooperative Achievement Knowledge Test (ETS)
- Waglow Softball Knowledge Test

Affective development (attitudes)

- Adams Physical Education Attitude Scale
- Blanchard Behavior Rating Scale
- Breck Sociometric Test of Status
- Carr Physical Education Attitude Test
- Cowell Social Adjustment Index
- Dexter Behavior Attitude Checklist
- Edgington Attitude Scale

Johnson Sportsmanship Attitude Scales
Kimer Attitude Inventory and Diagnostic Statements
Mercer Attitude Inventory
National Education Association Checklist for Physical Education
Neilson Character Rating Scale

Student assessment should be an integral part of the regular instructional period. Assessment can be accomplished by such methods as teacher judgment, peer evaluation, self-appraisal, standardized or normative tests, formative evaluation tests and criterion-referenced tests.

Evaluation plays an important role in the continued success of physical education programs. It is only through the cooperative efforts of physical education teachers that grade-level data, school-wide data and system data can be collected and interpreted for the purpose of program improvement.

Students with Special Needs

7

Physical education programs should provide handicapped students with learning experiences which are designed to minimize the handicapping conditions and which address the strengths inherent in each child.

The goals for such programs should be consistent with the statewide goals for education and with district goals and should parallel the goals and objectives for physical education programs for the general school population. The broad goals of organic, psychomotor, cognitive and affective development apply to programs for all students.

Program objectives for students with special needs, however, may vary somewhat from objectives for the regular program. Physical education for students with special needs centers around the individualization of the program including special testing and activities designed to meet the needs of students. Some examples of objectives are:

- to improve fundamental movement patterns;
- to improve motor fitness;

- to improve physical fitness;
- to develop sports skills;
- to improve skills in the use of crutches and wheelchairs in various sports and physical education activities;
- to eliminate fear related to physical activity;
- to improve group interaction skills, and
- to understand the rules of activities.

Special physical education is defined as a program which provides for the individual needs and abilities of exceptional individuals through special provisions including adapted, individualized and developmental activities.[13]

The majority of programs can be adapted or adjusted to meet the needs and abilities of exceptional students. Individualized physical education programs emphasize modification of the activities to meet the needs and limitations of the individual student; these programs are taught on an individualized basis. Developmental physical education programs stress the development of motor ability and physical fitness for students who are below the desired levels.

The Education of All Handicapped Children Act

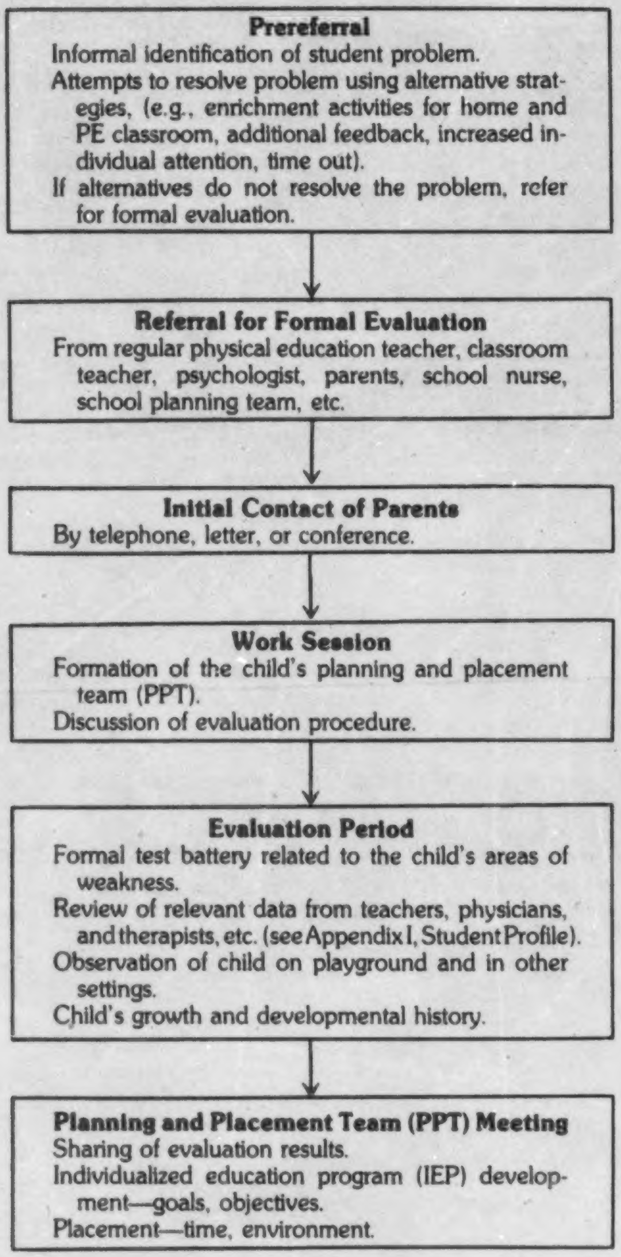
Public Law 94-142, the Education of All Handicapped Children Act of 1975, states that physical education services, specially designed if necessary, must be made available to every handicapped child who is receiving a free appropriate education.

Furthermore, the law defines special education as "specially designed instruction, at no cost to the parents, to meet the unique needs of a handicapped child, including . . . instruction in physical education." Thus, the law classifies physical education as an integral part of special education services, subject to the same guidelines.

The rules and regulations promulgated to implement P.L. 94-142 define physical education as the development of physical and motor fitness, fundamental motor skills and patterns, and skills in aquatics, dance, individual and group games and sports. The term also includes special physical education, adapted physical education, movement education and motor development.

Procedures for special physical education

The following schematic represents a step-by-step approach used for identifying a student problem, evaluating the problem, and developing a program to meet the student's needs.



Prereferral

Informal identification of student problem.

Attempts to resolve problem using alternative strategies, (e.g., enrichment activities for home and PE classroom, additional feedback, increased individual attention, time out).

If alternatives do not resolve the problem, refer for formal evaluation.

Referral for Formal Evaluation

From regular physical education teacher, classroom teacher, psychologist, parents, school nurse, school planning team, etc.

Initial Contact of Parents

By telephone, letter, or conference.

Work Session

Formation of the child's planning and placement team (PPT).

Discussion of evaluation procedure.

Evaluation Period

Formal test battery related to the child's areas of weakness.

Review of relevant data from teachers, physicians, and therapists, etc. (see Appendix I, Student Profile).

Observation of child on playground and in other settings.

Child's growth and developmental history.

Planning and Placement Team (PPT) Meeting

Sharing of evaluation results.

Individualized education program (IEP) development—goals, objectives.

Placement—time, environment.

Individualized education program (IEP)

Each handicapped child to receive special education services must be provided with an individualized education program. The IEP is developed by a planning and placement team (PPT) which, as a minimum, consists of an administrator, an instructor, and a pupil services staff person. Parents must be invited to PPT meetings, although they may choose not to attend. Other individuals, including the student when appropriate, may also be asked to attend PPT meetings at the request of the district or the parents.

In certain cases, the physical education teacher should be a member of the PPT. The school district may choose to include the physical education teacher in PPTs when substantial information about the student's level of motor performance, psychomotor and physical education needs will be discussed. In such cases, the physical education teacher will work with the team in writing an individualized education program (IEP) to meet the unique needs of the student (see Appendix J).

Contents of an IEP

The individualized education program must include the following components:[14]

- a statement of the child's present level of educational performance, including, where appropriate, academic achievement, social adaptation, prevocational and vocational skills, psychomotor skills and self-help skills;
- a statement of annual educational goals for the school year under the child's individualized education program;
- a statement of short-term instructional objectives derived from the annual educational goals, including criteria for objectives and evaluation procedures and schedules for determining, on a regular basis, whether the short-term instructional objectives are being achieved;
- a statement of specific educational services needed by the child, including a description of special education and related services which are needed to meet the needs of the child, such description to include the type of transportation necessary and a statement of the recommended instructional settings;
- the date when those services will begin and length of time the services will be given with the length of the school day and school year needed to meet the child's special education needs, including criteria to determine when services will no longer be needed;
- a description of the extent to which the child will participate in the regular education program, including a description of how the regular education program will be modified to meet the child's needs;
- a list of the individuals who shall implement the individualized education program, and
- in the case of a residential placement, a statement as to whether such placement is being recommended because of the need for services other than educational services.

Placements

Each handicapped child must be considered individually for educational placement decisions. The planning and placement team should place students in the least restrictive environment appropriate for the child so that he/she can participate fully to the extent consistent with her/his potential. This environment may be the regular physical education class; regular physical education with consultation; regular physical education with direct services (additional enrichment through individualized instruction or small group instruction); direct services, or a special class. Educating the student in the environment closest to his or her normal peers is of great importance since group interaction ranks high in all areas of learning. Whenever possible, the student should remain in regular physical education. Only when integration would be to the student's disadvantage should a self-contained environment be used. Preferred environments modify the student's regular physical education program to meet her/his specific needs in the regular class or to supplement the regular physical education program with special time in individualized or small group instruction.

An example of an individual education program showing long-range goals, short-term objectives, methods, materials and evaluations can be found in Appendix J.

Methods of modifying and adapting activities

In some cases, it will be necessary to change some features of games and activities to meet the goals and objectives for handicapped students either mainstreamed into regular physical education or participating in a special class. These changes should reflect the student's special needs, abilities and limitations. The adapted game or activity must be designed to match the student's individual needs and at the same time insure safe participation (see Appendix K).

When designing adapted activities for a physically handicapped student, the instructor must first survey the student's potential for movement. Secondly, each movement pattern to be used in the game or activity should be analyzed to determine the most mechanically efficient movement pattern for the student to use. Doolittle recommends the following possible modifications in games and activities for the handicapped.[15]

- **Reduce the range of the game.**

  Decrease the boundaries of the court, field, or play area.
  Lower the net or goal.
  Increase the number of players designated to cover an area.
  Play net-type games through a hoop.
  Use soft, or lightweight, play implements that will not travel far when hit, kicked or thrown.
  Attach a cord (tether) to a ball to limit the distance it will travel.
  Introduce changes to the rules that will reduce the amount of force

applied to implements being used in the game.
Reduce the time periods of the game or the number of points required to complete the game.

- **Use equipment that can be handled easily,** such as:

  light plastic implements that can be effectively held in one hand;
  large, partially inflated beachballs that can be handled with the arms and hands;
  soft yarn or fleece balls that can be grasped easily, and
  implements with special grips or handles.

- **Reduce the speed of moving objects.**

  Use large, lightweight balls that travel at a slower rate of speed.
  Decrease the air pressure in the ball.
  Introduce changes in the rules that will regulate the speed of the participants or the amount of force they may apply to the game implements such as:
    walk or hop, rather than run;
    throw the ball underhand;
    roll the ball;
    punch or throw the ball rather than kick it, and
    throw the ball to several others on the team before throwing it to a base.
  Play ball games on grassy surfaces.

- **Use mechanical devices which will**

  stabilize the participant, his limbs or playing implements:
    tripods or slings for riflery and archery;
    braces or straps to aid in gripping;
    terminal attachments to prosthetics for gripping, supporting, releasing, and activating, and
    ball-bearing feeder for table games
  increase the reach of the participant:
    pusher for bowling
  impart force or momentum to game implements:
    crossbow for archery
    chute for bowling
  align the participant with the boundaries, target or goal:
    guide rail for bowling
    sound devices behind goals or at boundaries
    sound devices within balls

- **Provide additional rest periods.**

  Allow free substitution in games.
  Rotate players from active positions to less active positions.
  Encourge time-out for rule interpretations or strategy discussions.
  Provide quiet table games on the sidelines which are similar to the game being played on the field or court:
    bowling
    box soccer

darts—baseball
electric basketball, football, baseball
nok hockey
skittles

Testing

Tests for nonhandicapped students are not always helpful in testing the handicapped. Tests that may be used are listed below. Most of the tests are useful only for screening and not for testing and retesting to determine progress. The tests that may be used for determining progress are marked by an asterisk. All tests may be found in adapted or special physical education texts. (Also refer to Ann Peacock-Craven's article "Screening Tests" in the March 1981 issue of the CAHPER *Bulletin*.)

AAHPERD Special Fitness Test for Mildly Mentally Retarded Persons
Body-Image Screening Test for Blind Children
Buell Adaptation of the AAHPERD Youth Fitness Test
Cratty Six-Category Gross Motor Test
*Denver Development Screening Test
Fait Physical Fitness Battery for Mentally Retarded Children
*Fait Basic Motor Skill Profile
Frostig Developmental Test of Visual Perception
Frostig Movement Skills Test Battery
Godfrey-Kephart Movement Pattern Checklist—Short Form
Lincoln-Oseretsky Motor Development Scale
Motor Fitness Test for the Moderately Mentally Retarded
Purdue Perceptual-Motor Survey
Southern California Perceptual-Motor Tests
*Texas Revision of Fait's Basic Motor Skill Test

Legal Requirements 8

A number of federal and state statutes and regulations directly affect the physical education curriculum. They are designed to protect the health and safety of participants in physical education and sports activities sponsored by the schools and to insure that every student, including the handicapped, will have an equal opportunity to take part in physical education programs.

Implications of federal laws

The United States Congress has passed a number of laws which address nondiscrimination on the basis of race, color, national origin, sex, age and handicapping condition. Three of these laws have implications for physical education programs.

Title IX of the Education Amendments of 1972 states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity . . ."

The regulations promulgated to implement Title IX disallow, in most instances, scheduling classes on the basis of sex. They also require that programs, facilities and equipment be made equally available to students regardless of sex.

In addition, the regulations cover employment practices. Compensation for coaching must be equal for similar work performed by either women or men.

Section 504 of the Rehabilitation Act of 1973 states: "No otherwise qualified handicapped individual in the United States shall, solely by reason of his handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity." The act further states: "No qualified handicapped person shall, because a recipient's facilities are inaccessible to or unusable by handicapped persons, be denied the benefits of, be excluded from participation in, or otherwise be subjected to discrimination under any program or activity to which this part applies."

School facilities must be accessible to handicapped students and school districts must provide them with equal opportunities for participation in physical education, interschool, club and intramural activities.

The Education of All Handicapped Children Act of 1975 (P.L. 94-142) requires that physical education services, specially designed if necessary, must be made available to every handicapped child. The rules and regulations developed to implement the law (P.L. 94-142) define physical education as programs to develop physical and motor fitness, fundamental motor skills and patterns, skills in aquatics, dance, individual and group games and sports including intramural and lifetime sports.

An individual program must be developed for each handicapped child addressing that child's physical education needs.

State laws

The Connecticut General Statutes contain numerous references to physical education. Section 10-16b establishes physical education as one of 11 mandated programs of instruction and directs that "each local and regional board of education shall by September 1, 1982, and annually thereafter at such time and in such manner as the commissioner of education shall request, attest to the state board of education that such local or regional board of education offers at least the program of instruction required pursuant to this section, and that such program of instruction is planned, ongoing and systematic."

Section 10-16b also requires the state board of education to assist in developing instructional programs. "The state board of education shall make available curriculum materials and such other materials as may assist local and regional boards of education in developing instructional programs pursuant to this section."

Section 10-221 directs local boards of education to set rules and regulations for the educational programs in their schools. It is the local board's legal responsibility to set the local policies, decide upon and approve the content of the local programs of study, and to determine the requirements for graduations from their schools, e.g., required subjects, including those indicated in the law, credits, attendance, and the like.

Section 10-228 of the general statutes directs local boards to purchase such books, and such supplies, materials, and equipment as it deems necessary to meet the needs of instruction in the schools of the district.

Other Connecticut laws and regulations

A number of other legal and regulatory acts pertain to physical education.

Legal liability. Protection of Teachers, Employees, and Board and Commission Members in Damage Suits, Section 10-235. This law is usually referred to as the "save harmless act."

Boards of education are not liable for the injuries caused by the negligence of agents; however, each board of education shall protect and save harmless any agent from financial loss and expense arising out of any claim of alleged negligence while discharging his/her duties within the scope of her/his employment or under the directions of such board of education. Negligence must be proved by the plaintiff.

Because accidental injuries can occur in such a variety of ways, it is impossible to generalize regarding liability. The following suggestions apply to most situations:

- School personnel should exercise judgment and common sense to prevent avoidable injuries.
- Common sense dictates the necessity of supervision, particularly on playgrounds and in gymnasiums. Failure of teachers to meet their supervision assignments can result in personal liability.
- Teachers should be aware of the health status of students, use only safe equipment in a safe environment and be prepared to perform proper first aid procedures.
- School boards should, by regulation, adopt minimum standards which specify the types of activities requiring supervision by members of the school faculty.

Preparation and certification of teachers. The improvement of instruction in physical education is dependent to a large degree upon the preparation of well-qualified teachers. This preparation is the responsibility of the teacher education institutions. Its implementation is the responsibility of the State Department of Education through statutory regulations for teacher certification.

Qualifications to teach physical education. Section 10-149 of the general statutes requires that, "The state board of education shall adopt regulations, fixing the qualifications of teachers in physical education, shall require all students at the state colleges who are preparing to teach to receive thorough instruction in such courses . . . ." All persons teaching physical education must have proper certification to teach in Connecticut. The certification regulations designate physical education as special subject or field certification.

Coaches' certification. Under Sec. 10-145a-22 of the Connecticut Teacher Certification Regulations, coaches of school teams engaging in interscholastic and intramural athletics must hold some type of valid teaching certificate. Coaches' aides should work under the direct supervision or direction of a certified teacher.

Teacher aides and paraprofessionals. It is recommended that teacher aides and paraprofessionals work under the direct supervision of a certified physical education teacher and only in a supportive and supplementary capacity. Aides assigned to the aquatics area should have appropriate qualifications.

Aquatics teacher. The responsibility for teaching swimming should be delegated to a person who is qualified and holds a teaching certificate in the State of Connecticut. This person should have an American Red Cross Water Safety Instructor's certificate, a YMCA certificate, or any other recognized certificate, which indicates mastery of water-safety skills and knowledge of suitable teaching methods. The instructor should also possess an American Red Cross First Aid Certificate.

Athletic trainers. A person discharging the duties of an athletic trainer should work under the direct supervision of the school medical adviser or the team physician. To be properly trained as an athletic trainer, it is recommended that a person should have completed a planned program in athletic training or sports medicine at an accredited college or university, hold certification from the National Athletic Trainers Association or have equivalent qualifications.

Discrimination prohibited. Section 10-15c of the general statutes states: "The public schools shall be open to all children five years of age and over and each such child shall have an equal opportunity to participate in the activities, programs and courses of study offered in such public schools without discrimination on account of race, color, sex, religion or national origin . . . ."

Health examinations. Section 10-206 of the general statutes requires a total of three health assessments for each child: one prior to school entry, one in the 6th or 7th grade and one in the 10th or 11th grade. The second and third assessments must include a postural screening by a school nurse, registered nurse or physical education teacher trained in such screening methods.

Access to buildings and facilities. Article 21 of the State of Connecticut Basic Building Code (revised 3-1-79) sets forth building construction and facilities requirements to insure that buildings and facilities are accessible to and usable by the physically handicapped.

Computation of grants. Section 10-286 of the general statutes limits state grants for the construction of outdoor athletic facilities, tennis courts, swimming pools and the area of spectator seating in a gymnasium to one-half of the eligible percentage of the total cost of construction.

Organization and Administration Procedures 9

The following recommendations pertain to organizing and administering a physical education program. They relate to factors which must be taken into account by curriculum planners as they develop a physical education curriculum.

Pupil orientation

With the approval of the local board of education and the building principal, the physical education department should provide an orientation session to acquaint new students with school policies, personnel, program offerings and physical education procedures such as showers, lockers and swimming pool regulations. These policies and procedures should be a part of the school or student handbook and should be made available for parents to review.

Time allotment

The ideal time plan should offer a daily class instruction period for each child taught by a physical education specialist, plus after-school programs for the beginner, the intermediate and the highly skilled student, with adequate facilities and instruction available.

One of the chief prerequisites to developing the kind of physical education program proposed in this guide is the provision of adequate time during the school day, supplemented by extraclass programs that begin in the intermediate grades.

This guide offers a program based upon the needs of children as determined by an assessment of the individuals in each age group. Therefore, it allows that the exact amount of time used and the manner in which it is to be used should be flexible. Some students may require more time than others to successfully fulfill the expected learning outcomes.

The total amount of time to be provided for physical education in each school system and for each class should be determined by:

- the philosophy of the school system relative to the contributions which physical education can make to the total development of children;
- an assessment of the needs of individual children in each age group and the expected learning outcomes required;
- the availability of facilities;
- the local curriculum of physical education;
- the extent to which physical education activities are integrated into the total educational program, and
- the availability of trained personnel.

To assist local communities in determining desirable time allotments for various age levels, the following time ranges for physical education instruction are suggested.

Time Recommendations

Ages	Minutes Per Week	Periods Per Week
3, 4, 5	60 to 100	
6, 7, 8	60 to 100	
9, 10, 11	90 to 150	
12, 13		3
14, 15		5
16, 17, 18		5

In addition to physical education instruction, students should be given the opportunity to participate in a planned, ongoing and systematic arts program including dance. Dance instruction may be offered through separate courses or infused into an appropriate curriculum area. The following optional time ranges are recommended.

Dance Time Recommendations

Grades	Minutes Per Week	Periods Per Week
1–3	30 to 60	
4, 5 and (6)*	40 to 80	
(6)*, 7 and 8		3
9–12		3

*In some school districts, 6th grade is considered part of the elementary grades, while in other districts, it is considered a part of the middle school.

For additional information on time recommendations, see the companion document, *A Guide to Curriculum Development: Purposes, Practices and Procedures.*

Class size

The teacher-pupil ratio should be the same for physical education classes as for other subject areas, with variations possible depending on the activity or teaching technique used. A standard size class usually consists of 25 to 30 students—the approximate enrollment in academic classes. Beginning aquatics classes should not exceed 20 students.

A certified physical education teacher should be available for every 350 students in both elementary and secondary schools. The teacher-pupil ratio should be approximately 1:25 or 1:30 per class except for beginning swimming classes which should be 1:20. In some instances, based on individual needs, the teacher-pupil ratio may be lowered to accommodate handicapped students.

All students, including those participating in varsity sports, sports clubs, dance clubs and the like, should be involved each year in the instructional phase of the physical education program.

Attendance

Teachers are legally responsible for the students in their charge and should therefore keep an accurate record of attendance for each class session. In physical education, an exact system of recording should be devised because of the variations in student participation. This system should be simple to administer and time efficient.

Excuses

Assignments to restricted, adapted, or rest programs should be made upon request by a physician. These recommendations should state specific reasons for requesting excuses from physical education. Every effort should be made to develop an individual program for each student.

Temporary excuses should be accepted only on the basis that the pupil's health would be impaired by physical activity. These excuses may be requested by parents, by a nurse or by the pupils themselves. But the excuses should not be valid for a period of more than one week. The physical educator should keep a copy of the excuse slip with the dates of absence and reasons for absence indicated. The excuse should be filed with the student's cumulative record.

Time allocated to physical education should be used for that particular purpose. When physical activity is not possible, study assignments should be made in selected reference works in the library. Assignments should be made which relate to the unit or topic being considered in the regular physical education program.

Varsity athletes should not be excused from the physical education class program. If the program is broad and diversified enough, athletes should select activities other than their specialities.

Grading in physical education

Pupil evaluation should be made in accordance with the established philosophy of the school system. The grade should be derived from similar methods of evaluation, which include written tests, aptitude, cooperative teacher-pupil evaluation, teacher evaluation, pupil self-evaluation, evaluation by groups and leaders, and degree of participation.

Grading in physical education should represent the progress the student has made in achieving the objectives of the activity based on his/her developmental level. Students should be evaluated on their own progress, not necessarily in relation to their peers.

Credit for physical education

It is desirable that credit in physical education be given toward promotion from grade to grade and required for graduation, as in other subject matter offerings. Credits and penalties should be applied for success or failure in physical education, as in other subjects.

Physical education is included in the curriculum because it contributes to educational outcomes. The credit is justified by the contribution physical education makes to the achievement of outcomes toward which all of education is directed.

Scheduling

Scheduling physical education requires the same consideration given to other subjects.

Title IX of the Education Amendments of 1972 prohibits the scheduling of students on the basis of sex. In order for school districts to fully comply with Title IX, certain guidelines are recommended.

- Schedule physical education classes without regard to sex.
- Do not label any curriculum offerings by sex, i.e., "boy," "girl."
- Provide skill instruction on a coeducational basis.
- Divide a class into groups by ability level based on objective tests.
- If desired, separate the class on the basis of sex during "game play" for the following activities only: wrestling, rugby, football, basketball, ice hockey.
- Provide students with the opportunity to choose activities on the basis of their interests.
- Offer equal opportunities for both boys and girls in intramural, extramural and sports programs. Equal opportunities includes practice and playing time, facilities, equipment and coaching.

Medical examinations

Section 10-206 of the Connecticut General Statutes as amended by P.A. 80-440 requires a total of three health assessments during a child's school career: one prior to school entry, one in the 6th or 7th grade, and another in the 10th or 11th grade.

Many functions are served by the use of medical examinations. Among these functions are: the determination of physical defects; the recommendation of corrective procedures for children with remediable defects; the recommendation of modified programs for those with nonremediable defects; the notification to parents of the status of their child's physical condition, and educating children to the results of their medical examination.

In interscholastic sports, boys and girls should be required to have a medical examination a minimum of once per year and an interim history report. After a period of illness, or after an injury, an athlete's return to practice or competition should be subject to a physician's approval. (See the State Department of Education's *Guidelines for Program Development in Sports Medicine.*)

Every effort should be made to have physical examinations completed within the first month of the school year. This policy offers protection for both teacher and student.

The trend is toward having the family physician conduct medical examinations. He/she is aware of the child's medical history and should be able to administer a more complete examination.

Insurance

All schools should have an accident insurance plan which is broad, comprehensive and tailored to the needs of the individual school or system. Consideration by each local school system should be given to different types of insurance policies to determine which provides the best balanced and most complete coverage for the instructional, intramural and interscholastic programs. This may be done by a survey to determine the need for insurance, after which specifications are drawn up which indicate the type and amount of insurance needed. Several insurance companies may be asked to evaluate the specifications and submit estimates of coverage and costs. After the school board has selected the best plan, parents should be informed about the insurance program. To make sure that the program is effective, pertinent records should be carefully kept and a yearly evaluation of the program made.

Accident reporting

All accidents occurring in physical education, extraclass or sports activities should be reported immediately on standard student accident report forms. This form should contain a description of the cause of the accident and a notation indicating if some change should be made in the equipment or facilities to prevent further accidents of this nature. Refer to the State Department of Education's *Guidelines for Program Development in Sports Medicine.*

Safety in physical education

A teacher in physical education should:

- have a proper teacher's certificate in full force and effect;
- operate and teach at all times within the scope of employment as delimited and defined by the rules and regulations of the employing board of education and within the statutory limitations imposed by the state;
- provide the safeguards designed to minimize the dangers inherent in a particular activity;
- provide the amount of supervision for each activity required to insure the maximum safety of all the pupils;
- inspect equipment and facilities prior to use to determine whether or not they are safe for use;
- notify the proper authorities in writing immediately concerning the existence of any dangerous condition as it continues to exist;
- provide sufficient instruction in the performance and safety precautions of any activity—particularly gymnastics, stunts and tumbling—before exposing pupils to its hazards;
- pay particular attention to basic skill progression when using a trampoline (Aerial somersaults are not recommended except for advanced students who are controlled by a safety harness.);
- be certain that the task is approved by the employing board of education for the age and attainments of the pupils involved;
- refrain from forcing pupils to perform a physical feat which the pupils

obviously feel they are incapable of performing;

- act promptly and use discretion in giving first aid to an injured pupil;
- act as a reasonably prudent person would under the given circumstances;
- anticipate the dangers which should be apparent to a trained intelligent person (a legal principle known as "foreseeability");
- hold current certification in CPR and first aid, and
- exercise caution when transporting students, being sure there is adequate insurance coverage.

Boxing is not recommended for inclusion at any grade level in the physical education program.

Connecticut Interscholastic Athletic Conference

The Connecticut Interscholastic Athletic Conference, Inc., (CIAC), is affiliated with the Connecticut Association of Secondary Schools and serves as the regulatory body for interscholastic athletics for member schools. The board of control of the CIAC sets eligibility standards and organizes and administers state athletic tournaments. Member schools must abide by the rules and regulations.

The school's role in community recreation

The school should cooperate with all other agencies in the community in encouraging and providing recreational opportunities. Since schools are built with tax funds, it is reasonable to make these facilities available evenings and weekends for recreation. Town or school budgets should provide adequate funds for supervision, care and maintenance above and beyond the school budget.

Just as school facilities should be made available for a community recreation program, arrangements should be sought by which community facilities—playfields, tennis courts, golf courses and swimming pools—can be made available for school usage. Recreation and school programs should supplement and complement each other.

A good way to develop and maintain a liaison between school and community programs is for school staff to serve as town recreation leaders.

10 Facilities, Equipment and Supplies

Proper planning for the development of physical education facilities cannot be overemphasized. The major purposes of proposed facilities should be clearly defined and interpreted. The purposes should reflect program goals and program objectives.

Factors which should be considered when planning for facilities, equipment and supplies include:

- community support and involvement
- a community-wide needs assessment
- cooperation and involvement by those who will be using the facilities
- accessibility for handicapped persons
- multipurpose use of facilities
- state and local regulations
- the structural form of the facilities

The form should be dictated by the function of the facilities.

For detailed information on the planning of outdoor and indoor facilities see *Planning Facilities for Athletics, Physical Education and Recreation*, revised 1979 by the Athletic Institute and the American Alliance for Health, Physical Education, Recreation and Dance, Reston, VA.

Number of teaching stations

The number of teaching stations or sites needed is based on the total pupil enrollment, the average number of pupils in a class, diversity of program, and the number of periods each week that a station can be scheduled for classes. Computation of the numerical minimum requirement for the secondary level, is achieved by the following formula.

$$\text{Minimum number of teaching stations} = \frac{\text{Number of students}}{\text{Average number of students per instructor}} \times \frac{\text{Number of periods class meets each week}}{\text{Total number of class periods in school week}}$$

If a school with a projected enrollment of 1,500 students has six class periods per day with an average class size of 25 students, and physical education is required on a daily basis, the formula application is as follows:

$$\text{Minimum number of teaching stations} = \frac{\text{1,500 students}}{\text{25 per class}} \times \frac{\text{5 periods per week}}{\text{30 periods per week}} = \frac{7{,}500}{750} = 10$$

Elementary school physical education class size is usually based on the number of pupils in the classroom unit. Because of pupil-maturation differences, physical education periods generally vary from 20 minutes for preprimary to 40 minutes for intermediate, with the school average (for computation purposes) being 30 minutes per class.

The formula for computing the number of teaching stations needed for physical education in an elementary school is as follows:

$$\text{Minimum number of teaching stations} = \text{Number of classrooms of students} \times \frac{\text{Number of physical education periods per week per class}}{\text{Total periods in school week}}$$

Thus, if an elementary school with six grades has three classes at each level (18 classes and approximately 400 to 500 pupils), and there are ten 30-minute periods scheduled each day, teaching station needs can be calculated as follows:

$$\text{Minimum number of teaching stations} = \text{18 classroom units} \times \frac{\text{5 periods per week}}{\text{50 periods a week}} = \frac{90}{50} = 1.8$$

Since constructing a fraction of a teaching station would be impractical, two stations would be needed.

Standards for teaching stations

Some general accepted standards are:

- a minimum of 70 square feet per preprimary student
- a minimum of 100 square feet per primary and intermediate student
- a minimum of 125 square feet per student in the lower, middle, and upper secondary school
- smaller units for special purposes as necessary

These should be a minimum of 40 × 60 feet in size and equipped for the special needs served.

Location, size, accessibility of gymnasium or field house

Adaptability to purpose favors locating the gymnasium or field house facilities adjacent to playing fields, and on the ground floor. Location of these facilities in a wing of the building helps to eliminate the possibility of objectionable noise in academic classrooms. With this arrangement, corridor gates and a separate entrance may be installed to separate this area from other parts of the school building, thereby aiding the traffic control of community groups.

The intended use of a gymnasium or field house determine its size. Factors to consider are school grade levels to be served; number of teaching stations required, official sizes of playing courts; community use, and spectator space. Physical education facilities also should be built or adapted so that all physically handicapped persons, including those in wheelchairs, will have ready access to them either as participants or as spectators.

The field house

School architects have recommended this structure for reasons of economy. The area unmarked by structural supports serves multiple purposes; it provides adequate space for a variety of physical education activities including interscholastic sports. As a meeting place, it accommodates large groups assembled at commencement and other public functions which are too large for the school auditorium.

Classroom facilities should be part of the physical education complex. Classrooms facilitate special instruction in principles which apply to an activity, game rules and strategies, evaluation, media presentations and numerous other elements of the program.

Dance

A dance facility should provide a minimum 100 square feet per student with one dimension approximately 60 feet. The floor surface should be constructed of hard northern maple which has been sealed and buffed with fine abrasive. Other equipment should include full-length mirrors, a speaker system, a control system for record players and microphones and practice barres.

Adequate storage rooms for supplies and equipment will be needed adjacent to the teaching station and on the same level. The recommended area is 250 to 300 square feet for each teaching station. Doors at least six feet in width, with a flush threshold, should connect the teaching station and the storage room.

Staff facilities

Adequate facilities for teachers are essential to effective performance of their duties. These include offices, dressing rooms, showers, lavatories, toilets, and storage space. These facilities should be located adjacent to the office. Some schools with large staff may prefer a faculty dressing unit off the main dressing room.

Swimming pool

A swimming pool is a highly desirable facility in any school unless there are community swimming facilities adjacent to the school which can be used by physical education classes. A pool provides a teaching station for the instruction of swimming, diving and water safety.

Pools should be built on the ground floor in order to provide ventilation and natural lighting. Proper location of dressing rooms, showers and toilets should favor the routing of swimmers. Students should leave the locker room, pass the toilet and take showers before arriving at the pool entrance. Clearly marked entrances and exits to and from the shallow end of the pool contribute to safety. At the close of the period students take showers and return to the dressing room.

The minimum number of students in a pool should be calculated on the basis of 40 square feet of water surface area for each pupil for instructional purposes and 27 square feet of water surface area for each pupil for recreational swimming.

Desirable pool temperatures are between 78° and 80°F. If the pool is being used by both handicapped and nonhandicapped students, the pool temperature should be kept at 80°F. The recommended pool temperature for students with spasticity is 85°F. The temperature of the room should not exceed the temperature of the pool by more than 5°F. Special consideration should be given to heating and ventilation for the comfort of spectators as well as swimmers.

Emergency equipment should be available at all times, under the immediate supervision of an instructor or attendant who understands thoroughly the use of the equipment. The necessary lifesaving equipment includes pool hooks, ropes and buoys. A resuscitator and/or inhalator may be a part of the emergency equipment providing the administrator has had special training in its use.

Emergency first aid kits should be located in all gymnasium and swimming pool areas.

Main dressing room

In both middle and secondary schools, dressing rooms are needed which provide small storage lockers for all pupils and enough lockers for the peak physical education class load. Additional dressing rooms are desirable to accommodate interschool sport squads and community groups. Hair drying equipment should be available.

Each student should be furnished with a combination padlock. Two master sheets of all combinations should be prepared, one to be kept in the instructor's file cabinet, equipped with a lock, the other in the fireproof safe of the principal's office.

The average time for dressing is from seven to ten minutes to prepare for the instruction period and from 12 to 15 minutes for the shower bath and dressing in street clothes.

Shower room

Preferably, the dressing room and the shower room are separate but adjacent units. It is recommended that the shower room be placed on the ground floor rather than in the basement. In this preferred location, the shower room receives natural light and ventilation, and easy access is given to dressing rooms, lavatories, gymnasiums and swimming pools. Such an arrangement facilitates supervision and community use.

The gang-type shower saves water and time and assures a bath of regulated temperature and duration. Approximately two to five individual showers and dressing cubicles should be provided to meet individual needs. Showers are recommended after vigorous activity for students in grades 4 through 12.

Appropriate clothing

All students should be encouraged to change to clothing that is deemed appropriate for the activity. The proper attire should provide for safety as well as for comfort and freedom of movement. Other factors which should be considered in encouraging and promoting the use of proper attire are:

Safety. The wearing of sneakers in preference to shoes allows for better traction, and the elimination of ties, dangling sleeves, or wide shirts aids in the prevention of accidents.

Economy. The wearing of clothing appropriate for physical activities to save ordinary street clothes and provide greater freedom of movement during exercise periods is recommended.

Cleanliness. The periodic laundering of such clothes is essential. To assure a maximum condition of sanitation and safety, clean laundered towels and swimming suits should be supplied to students each time they use the pool.

Towel service

Each school should be responsible for providing and paying for its own towel service if showers are required by that school. The towels may be school-owned or obtained from a rental service.

Section 10-228 of the Connecticut General Statutes requires each town to purchase such books and supplies as are necessary to meet the needs of instruction in the schools, town or district. This is interpreted to include soap and towels needed for physical education classes.

Playground

The elementary school playground should consist of a minimum of five acres plus an additional acre for every 100 pupils of anticipated enrollment. This would mean a site of seven acres for 200 pupils.

The amount of land needed for a junior high school will vary from a minimum of 15 to 25 acres. A senior high school needs a minimum of 25 to 30 acres. School enrollment and the extent of the program will determine additional land needs.

Types of play area

Different types of play areas are suitable for different uses. For example:

Multiple-use paved areas. Insure an all-weather section for various games such as volleyball, basketball, badminton, tennis, paddle tennis, shuffleboard and a variety of community activities.

Tot lot. A fenced-in area, a portion of which should be hard surfaced, serves children of preschool and kindergarten age. It is equipped with climbing structures and other suitable apparatus.

Apparatus area. The concept of non-moving equipment stimulates children to engage in active and creative play and maintains their interests for long periods of time.

Field-games area. The largest area of outdoor facilities is planned for such games and activities as archery, baseball, softball, field hockey, football, touch or flag football, soccer and speedball.

Court-games area. The surface may be earth, paving, tartan, astroturf or other artificial surfaces. Included in this area may be separate courts for tennis, volleyball, handball, horseshoes and basketball.

Athletic field. A separate area for interschool games and contests is an essential facility for senior high schools. It may also be used for neighborhood and community activities. The area should include a metric track and spectator seating.

Surfacing

No one surface contains all of the qualities desired. Each play area presents special problems requiring study in the selection of a satisfactory surface.

Many authorities recommend turf as the best surfacing material for general purposes, especially on large game areas of two or three acres or more.

Artificial grass surfaces are sometimes used. Some artificial surfaces are considered suitable for all purposes. A blacktop surface gives reasonably satisfactory service for playgrounds in constant use.

Inventory of supplies and equipment

Inventories of supplies and equipment should be taken at the beginning and end of every school year. Spot inventories should be made periodically.

There are three categories of equipment and supplies. Inventories should be taken of:

- stationary equipment, such as ladders, rings, stall bars and horizontal bars;
- moveable equipment, such as trampoline, parallel bars, horse, side horse, buck, and
- supplies, such as basketballs, softballs, volleyballs, badminton racquets, golf balls and bowling equipment.

A list of basic equipment for a physical education program can be found in Appendix L.

11

Extraclass Experiences

A comprehensive physical education and sports program includes both class instruction and extraclass experiences. Extraclass experiences are extensions of planned, ongoing and systematic physical education instruction. These experiences should supplement and not supplant the instructional program. The term extraclass is used in preference to extracurricular because such a program should be considered within the total curriculum of the school. Activities included in the extraclass program should be those which are an outgrowth of activities taught during the regular physical education class period.

Intramural experiences

Intramural experiences are those activities which are organized and conducted for voluntary participation by students within the same school. Intramural activities may be competitive and noncompetitive.

The intramural program should have written objectives and the activities offered should help to meet those objectives. A well-designed intramural program should:

- provide opportunities for the application of learned skills to actual game situations;
- provide opportunities for student leadership, and
- contribute to the fitness and well-being of the participants.

Some suggestions for strengthening intramural programs follow.

- All pupils, including those who do not perform well, should be encouraged to participate in this phase of the program. Handicapped children should be given special encouragement to participate, within the bounds of their capabilities.
- Pupil participation in planning, organizing and leading intramural activities should be encouraged.
- All pupils should have opportunities to choose from a broad and varied program of activities.
- Participation for pleasure should be the main objective, eliminating excessive pressure to win.
- Pupils who participate in an interscholastic sport should not be allowed to participate as players in the same sport on an intramural basis.
- Adequate time to use facilities should be provided, preferably after school or on Saturday. (In schools where class or bus schedules prevent this, it may be necessary to utilize the noon hour or the activity period. Many

Suggested Intramural Experiences

Archery
Back-packing
Badminton
Baseball
Basketball
Bowling
Cross-country running
Cross-country skiing
Field hockey
Floor hockey
Golf
Handball
Hiking
Hocker
Ice hockey
Indoor track
Jogging
Lacrosse
Paddle ball
Racquet ball
Roller skating
Skiing
Soccer
Softball
Speedball
Swimming
Table tennis
Tennis
Touch or flag football
Track and Field
Volleyball
Water polo
Wrestling

schools schedule late buses for pupils who participate in intramural activities.)

- Leagues and tournaments should be organized in a manner that will equalize competition as much as possible. Frequently, homerooms or clubs are used as units for organization.
- Intramural activities should be an outgrowth of the class program.
- The material value of awards should be de-emphasized.
- The program should comply with Title IX by providing equal opportunities for boys and girls in all aspects of the program.
- The program should comply with P.L. 94-142 by providing handicapped students equal opportunities to participate.

Extramural experiences

Extramural experiences are those activities which are conducted as sports days, play days or other approved interschool activities without involving a full season schedule, league competition or championship.

The following are intended as suggestions for strengthening an extramural program.

- A wide variety of activities should be offered to enrich the experiences of as many pupils as possible.
- Pupils who participate in an interscholastic sport (for definition see page 75) should not be allowed to participate as players in the same sport conducted as an extramural activity.
- More emphasis should be placed on participation than on a high degree of skill and competition. A broad and diversified program of activities should be provided so that all students will be challenged.
- Students should be taught and provided opportunities to officiate as much as possible.
- Students should be provided with experiences in scheduling of facilities and transportation.
- Equal opportunities should be provided for students regardless of sex or handicapping condition.

Suggested Extramural Experiences

Archery
Badminton
Baseball
Basketball
Bowling
Cross-country running
Field hockey
Golf
Hocker
Ice hockey
Indoor track
Lacrosse
Paddle ball
Racquet ball
Skiing
Soccer
Softball
Speedball
Swimming
Table tennis
Tennis
Touch football
Track and field
Volleyball
Wrestling

Interscholastic sport experiences

Interscholastic sport programs are organized competitions involving contests for teams of individuals who are trained and coached to participate in events with similar teams or individuals from other schools.

Objectives for the interscholastic program should be clearly stated and communicated to school personnel, parents and students involved in the program. A well-designed program should:

- provide highly skilled students with the opportunity to improve their physical skills;
- promote fitness and physical well-being, and
- provide opportunities for students to develop sportsmanship and leadership qualities.

The following suggestions for program improvement may be useful.

- Interscholastic sport activities should be an effectively organized and well-coordinated phase of the secondary school program and should be an outgrowth of a balanced physical education program.
- Interscholastic competition should be employed after a well-planned and well-conducted intramural program has been developed.
- Amateurism, not professionalism and commercialism, should be the basic theme of operation.
- Interschool competition is definitely not recommended for children in the elementary grades (K–6).
- Education in game ethics and sportsmanship should be promoted for participants, spectators and coaches.
- Participants should be covered by adequate and appropriate insurance.
- Participants should be cleared medically for participation.
- Equal opportunities should be provided regardless of sex or handicapping condition.

Suggested Interscholastic Athletic Experiences

Badminton
Baseball
Basketball
Bowling
Crew
Cross-country
Fencing
Field hockey
Football
Golf
Gymnastics
Ice hockey
Indoor track
Lacrosse
Riflery
Skiing
Soccer
Softball
Swimming
Tennis
Track and field
Volleyball
Wrestling

Recreational experiences

Recreational experiences are those activities which develop students' capabilities to perform a variety of physical and social skills that will be useful during leisure, now and throughout their lives.

The following are intended as suggestions for program improvement.

- Schools should cooperate with other agencies in the community in providing recreational opportunities for all community members.
- School facilities should be used evenings and weekends, or when available, for recreational purposes.
- In the senior high school, especially in grades 11 and 12, there should be an emphasis on lifetime activities.
- Students should have fun, learn new skills, perfect old ones and follow special interests in an informal atmosphere.
- Students should share in planning and conducting their activities.
- Recreational programs should be flexible to allow for changes in interests and cultural patterns.
- Recreational activities should offer opportunities for participation in indoor and outdoor activities which emphasize social rather than competitive factors.
- Coeducational participation is recommended in all aspects of this program.

Related experiences

Additional enriching experiences can be organized and conducted as a council, association or club. Many of these activities may be coeducational, depending on the leadership and facilities available, as well as interests and abilities. Councils, associations or clubs can provide instruction in activities which may or may not be included in the regular class program.

Suggested Related Experiences

Athletic association
Bicycle club
Boating club
Bowling club
Camping club
Canoeing club
Cheerleading club
Crew club
Cross-country skiing club
Dance club
Demonstrations
Fencing club
First aid club
Fishing club
Golf club
Gymnastic club
Hiking club
Horseback riding club
Hunting club
Ice hockey club
Ice skating club
Intramural council
Leaders club
Lifesaving club
Rifle club
Roller skating club
School service club
Skiing club
Snowshoeing club
Spectator club
Tobogganing club
Water skiing club
Weight training club

The following are ways to enhance related experiences programming.

- Special effort should be made to acquaint pupils with and to utilize human resources and desirable physical recreation opportunities in the community.
- As many related activities should be conducted as can be properly administered and supervised, so that the needs and interests of a maximum number of pupils are met.
- Qualities of good leadership and principles of democratic life should prevail in all activities.

Appendix A
Statewide Goals for Education

From Connecticut's *Comprehensive Plan for Elementary and Secondary Education, 1980–1985*

GOAL ONE

Motivation to Learn

To realize their potential to learn, students must be highly motivated.

Therefore:

Connecticut public school students will develop strong motivation by responding to the high expectations of their parents, teachers and school administrators; by understanding and striving to fulfill personal aspirations, and by developing the positive feelings of self worth which contribute to responsible behavior and personal growth, health and safety.

GOAL TWO

Mastery of the Basic Skills

Proficiency in the basic skills is essential for acquiring knowledge and for success in our society.

Therefore:

Connecticut public school students will, to their full potential, learn to communicate effectively in speech and writing; read with understanding; acquire knowledge of and ability in mathematics, and strengthen decision-making skills.

Appendix A (continued)

GOAL THREE

Acquisition of Knowledge

Acquiring knowledge leads to fuller realization of individual potential and contributes to responsible citizenship.

Therefore:

Connecticut public school students will acquire the knowledge of science, mathematics, social studies, the arts, literature and languages which leads to an understanding and appreciation of the values and the intellectual and artistic achievements of their culture and other cultures, and will take full advantage of opportunities to explore, develop and express their own uniqueness and creativity.

GOAL FOUR

Competence in Life Skills

Students are challenged to function successfully in multiple roles as citizens, family members, parents, producers and consumers.

Therefore:

Connecticut public school students who complete secondary level studies will have the ability to make informed career choices; understand the responsibilities of family membership and parenthood; be prepared to undertake the responsibilities of citizenship in their communities, in the state, in the nation and in the world; and have the skills, knowledge and competence required for success in meaningful employment, or be qualified to enter postsecondary education.

GOAL FIVE

Understanding Society's Values

To be responsible citizens and contribute to positive change, students must understand and respect the underlying values of this society.

Therefore:

Connecticut public school students will appreciate diversity and understand the inherent strengths in a pluralistic society; they will understand and respond to the vital need for order under law; they will acquire the knowledge necessary to live in harmony with the environment, and actively practice conservation of natural resources, and they will respect the humanity they share with other people.

Appendix B
Legislation

The series of guides to curriculum development published in 1981 by the State of Connecticut Board of Education is consistent with the provisions of Sections 10-4 and 10-16b (or P.A. 79-128) of the Connecticut General Statutes.

Section 10-4. Duties of Board. (a) . . . shall prepare such courses of study and publish such curriculum guides . . . as it determines are necessary to assist school districts to carry out the duties prescribed by law . . . .

Section 10-16b. Prescribed courses of study. (a) In the public schools the program of instruction offered shall include at least the following subject matter, as taught by legally qualified teachers: the arts; career education; consumer education; health and safety; language arts, including reading, writing, grammar, speaking and spelling; mathematics; physical education; science; social studies, including, but not limited to, citizenship, economics, geography, government and history; and in addition, on at least the secondary level, one or more foreign languages and vocational education.

(b) Each local and regional board of education shall on September 1, 1982, and annually thereafter at such time and in such manner as the commissioner of education shall request, attest to the state board of education that such local or regional board of education offers at least the program of instruction required pursuant to this section, and that such program of instruction is planned, ongoing and systematic.

(c) The state board of education shall make available curriculum materials and such other materials as may assist local and regional boards of education in developing instructional programs pursuant to this section.

Appendix C
Resources

Among the many sources of information relevant to curriculum development in physical education are publications, professional associations (often the disseminators of published materials), Connecticut's regional educational service centers and institutions of higher education in the state which offer programs of teacher preparation in physical education. The following list contains selected references; it is not a comprehensive list of available resources.

Publications

American Association for Health, Physical Education, Recreation and Dance (AAHPERD). See list of titles, page 83.

Arnheim, Daniel D., David Auxter and Walter C. Crowe. *Principles and Methods of Adapted Physical Education,* 3rd edition. St. Louis: C.V. Mosby Co., 1978.

Baumgartner, Ted A. and Andrew S. Jackson. *Measurement for Evaluation in Physical Education.* Boston: Houghton Mifflin Co., 1975.

Bengtsson, Arvid. *Adventure Playgrounds.* New York: Praeger Pubs., 1972.

Burton, Elsie C. *The New Physical Education for Elementary School Children.* Boston: Houghton Mifflin Co., 1977.

Daniels, Arthur S. and Evelyn A. Davies. *Adapted Physical Education.* New York: Harper & Row Pubs., Inc., 1975.

Dauer, Victor P. *Fitness for Elementary School Children through Physical Education,* 5th edition. Minneapolis: Burgess Publishing Co., 1976.

Fait, Hollis F. and John Dunn. *Special Physical Education, Adapted, Corrective, Developmental,* 5th edition. Freehold, NJ: W.B. Saunders Publishing Co., 1982.

Fait, Hollis F. *Physical Education for the Elementary School Child,* 3rd edition. Freehold, NJ: W.B. Saunders Publishing Co., 1976.

Franks, B. Don and Helga Deutsch. *Evaluating Performance in Physical Education.* New York: Academic Press, Inc., 1978.

Gerich, Michael. "Mainstreaming the Handicapped Child," *The Bulletin*. CT: CAHPER, March 1981.

Heitmann, Helen M. and Marion E. Kneer. *Physical Education Instructional Techniques: An Individualized Humanistic Approach*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1976.

Hewes, Jeremy Joan. *Build Your Own Playground! A Sourcebook of Play Sculptures, Designs and Concepts from the Work of Jay Beckwith*. Boston: Houghton Mifflin Co., 1975.

Logsdon, B.J. *Physical Education for Children: A Focus on the Teaching Process*. Philadelphia: Lea & Febiger, 1977.

Peacock-Craven, Ann. "Screening Tests," *The Bulletin*. CT: CAHPER, March 1981.

Physical Education Publications. *Physical Education Newsletter*, P.O. Box 8, Old Saybrook, CT 06475.

Ridini, Leonard M., and John E. Madden. *Physical Education for Inner City Secondary Schools*. New York: Harper & Row Pubs., Inc., 1975.

U.S. Consumer Products Safety Commission. *A Handbook for Public Playground Safety*. 2 Vols. Washington, DC: 1981.

Vannier, Maryhelen. *Physical Activities for the Handicapped*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1977.

Vannier, Maryhelen and Hollis F. Fait. *Teaching Physical Education in Secondary Schools*, 4th ed. Freehold, NJ: W.B. Saunders Publishing Co., 1978.

Vannier, Maryhelen and David Gallahue, *Teaching Physical Education in the Elementary School*, 6th ed. Freehold, NJ: W.B. Saunders Publishing Co., 1978.

Welsh, Raymond. *Physical Education: A View Toward the Future*. St. Louis: C.V. Mosby Co., 1977.

Willgoose, Carl E. *The Curriculum in Physical Education*, 3rd ed. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1979.

AAHPERD Publications
P.O. Box 870, Lanham, MD 20801

Adapted Physical Education Guidelines: Theory and Practices for 70s and 80s

Annotated Bibliography on Movement Education

Annotated Bibliography on Perceptual-Motor Development

Assessment Guide for Secondary School Physical Education Programs

Athletics in Education

Basic Stuff for K–12 Physical Educators

Complying with Title IX in Physical Education and Sports

Curriculum Design: Purposes and Processes in Physical Education Teaching-Learning

Dance as Education

Appendix C (continued)

Discover Dance

Educational Gymnastics

Essentials of a Quality Elementary School Physical Education Program

Games Teaching

Guidelines for Middle School Physical Education

Guidelines for Secondary School Physical Education

Ideas for Secondary School Physical Education

Implementation of Aerobic Exercise Programs

Integrating Persons with Handicapping Conditions into Regular Physical Education and Recreation Programs

Intramural Ideas

Knowledge and Understanding in Physical Education

Lifetime Health-Related Physical Fitness Test Manual

Personalized Learning in Physical Education

Physical Activities for Impaired, Disabled, and Handicapped Individuals

Physical Education for High School Students

Planning Facilities for Athletics, Physical Education and Recreation

Practical Pointers

Proficiency Testing in Physical Education

Programs that Work—Title IX

Rules for Coeducational Activities and Sports

Self/Teaching Sports Techniques Books

Trends in Elementary School Physical Education

Youth Fitness Test Manual

Higher Education

The following Connecticut institutions offer programs for teacher preparation in physical education and can provide consulting services on curriculum development.

Arnold College
University of Bridgeport
380 University Avenue
Bridgeport, CT 06602

Central Connecticut State College
1615 Stanley Street
New Britain, CT 06050

Eastern Connecticut State College
Windham Street
Willimantic, CT 06226

Post College (recreation)
800 Country Club Road
Waterbury, CT 06708

Southern Connecticut State College
501 Crescent Street
New Haven, CT 06515

University of Connecticut
Storrs, CT 06268

Professional Associations

American Association for Health, Physical Education, Recreation and Dance (AAHPERD)
1900 Association Drive
Reston, VA 22091
Publications: *Journal of Physical Education, Recreation and Dance*
Update

Connecticut Association for Health, Physical Education, and Recreation (CAHPER)
211 Steele Road (1981–82)
West Hartford, CT 06117
Publication: *The Bulletin*
Editor: University of Connecticut
Department of Sport and Leisure Studies
Box U34
Storrs, CT 06268

Connecticut State Medical Society
160 St. Ronan Street
New Haven, CT 06511

Eastern District Association (EDA-AAHPERD)
(For address, see AAHPERD, above.)
Publication: *The Easterner*
Department of Physical Education
University of Delaware
Newark, DE 19711

Governor's Committee on Physical Fitness
c/o Joni Barnett
Payne Whitney Gymnasium
Yale University
New Haven, CT 06520

Phi Epsilon Kappa Fraternity
9030 Log Fun Drive
North Indianapolis, IN 46234
Publication: *The Physical Educator*

President's Council on Physical Fitness and Sports
400 6th Street, SW
Washington, DC 20201

Regional Educational Service Centers

Area Cooperative Education Services (ACES)
800 Dixwell Avenue
New Haven, CT 06511

Capitol Region Education Council (CREC)
212 King Philip Drive
West Hartford, CT 06117

Cooperative Educational Services (CES)
11 Allen Road
Norwalk, CT 06852

Eastern Connecticut Regional Educational Service Center (EASTCONN)
R.R. 2
Willimantic, CT 06226

Long-Range Educational Assistance for Regional Needs (LEARN)
P.O. Box 220
East Lyme, CT 06333

Regional Educational Services Concept through United Effort (RESCUE)
R.R. 2, Goshen Road
Litchfield, CT 06759

Appendix D
Philosophy Statements

(Samples)

Aim of Physical Education

SAMPLE 1

Through this physical education program in the middle school the aim is to:

Prepare the student for his/her role as a citizen in a democratic society.

Enable her/him to function as an active intelligent participant in the society.

Create an awareness of the need for cooperation with one's fellowmen everywhere for the purpose of developing world citizenship.

Develop the physical, intellectual, social and emotional resources of the individual for constructive daily living.

Develop a sound strong body so that each individual pupil can participate in and enjoy physical activities to his/her fullest potential.

Middle School Physical Education Guide
Hartford, CT

SAMPLE 2

Some form of regular physical activity is of value to all humans throughout their lifetimes. The Physical Education Program in Darien strives to help all students gain the necessary knowledge, and to acquire the appropriate physical and social skills, so essential in developing an active life style. In addition, the program offers opportunities for all students to develop and maintain a level of physical fitness necessary for maximum growth and development.

Required Instructional Program

The Required Physical Education Instructional Program, K–12, is an integral part of the total educational process, and provides for:

Organic Development as it is concerned with maintaining a desirable level of health and physical fitness.

Psychomotor Development as it is concerned with proficiency in the performance of movement and sports-related skills, including lifetime sports.

Cognitive Development as it is concerned with the understanding of the relationship between physical activity and good physical and mental health.

Affective Development as it refers to adjustment both to self and to others, as well as to the development of desirable standards of conduct.

Physical Education Department
Darien (CT) Public Schools

Appendix E
Scope and Sequence

(Samples)

SAMPLE 1

Scope of the Physical Education Instructional Program

The Physical Education program in the Simsbury Public Schools will provide for a balanced sequential program of low organized activities, conditioning activities, rhythms and dance, games, gymnastics, and individual and team sports. Upon completion of twelve years of Physical Education, the student will have had the opportunity to both obtain and understand the need for a well conditioned body trained in a broad range of physical skills. This program will allow for effective participation in leisure time activities during adult life.

Primary-Elementary School (grades K–3)—Program Description

The elementary school Physical Education program will be centered around movement education (problem-solving) and low organizational activities. It is through these movement experiences and activities that young children learn about themselves, what they can do and how they relate to the world around them, as well as developing psychomotor, cognitive and effective skills.

A large majority of suggested experiences for the elementary school program are individual in nature, centering on body management, rhythms, manipulative skills, apparatus, stunts and tumbling.

These types of experiences offer children opportunities to explore, try out and create. They learn to express themselves through movement.

At this stage of development, the elementary child will have opportunities to lay the foundation for body management and control. Fitness needs are taken care of within movement experiences. These experiences will be geared to meet the divergent needs of all pupils—including the mentally retarded and the physically handicapped.

Upper-Elementary School (grades 4–6)—Program Description

The upper-elementary school Physical Education Instructional program will be built upon the foundation of skills, knowledges and attitudes acquired at the primary levels.

Emphasis will, however, center more on team sport activities, large apparatus use and fitness testing and its comprehension. Values along the lines of social and emotional control during play will be taught and the student will learn basic rules of the major sports. Intramural offerings of various sport and gymnastic activities will be made at these grade levels for the first time.

Middle School (grades 7–8)—Program Description

The junior high Physical Education program will be comprised predominately of team sport activities, gymnastics and rhythm and dance. Dual and individual sport competition will be introduced on a moderate basis but only as a means of serving as a forerunner for the secondary program.

Emphasis will continue to be stressed along the lines of fitness testing and its implication and the student will be offered a varied intramural program after school hours.

Secondary School—Program Description

The upper secondary school Physical Education program will be a required program. However, pupils will be able to select from the course offerings two team sport activities and six lifetime activities of their own liking.

Credit will be given for interscholastic competition as well as for contractual arrangement in activities taken other than at the school setting.

The specific intent of the program will be to provide each pupil with a mastery of diverse skills, a knowledge of rhythmic activities and sports, an ability to resist and endure fatigue, an understanding of the effect of exercise, a development of socially approved sports conduct, and an appreciation and desire to enjoy and regularly participate in physical activities throughout life.

Simsbury (CT) Public Schools

SAMPLE 2

Revised Pre-K–12 Physical Education Scope and Sequence Chart
Effective September, 1978

	Pre-K–K (Ages 3–5)	Grades 1–3 Primary (Ages 6–8)	Grades 4–6 Intermediate (Ages 9–11)
Fall	(Required) Basic Movement Experiences Simple Rhythms Manipulative Skills	(Required) Developmental Movement Games of Low Organization Relays Simple Team Games Rhythmic Activities Individual and Dual Activities	(Required) Touch Football Related Activities Soccer Type Activities Individual and Dual Activities
Winter	Basic Movement Experiences Simple Rhythms Manipulative Skills	Developmental Movement Games of Low Organization Rhythmic Activities Relays	Basketball Type Activities Gymnastics Rhythmic Activities Volleyball Type Activities Street Hockey
Spring	Basic Movement Experiences Simple Rhythms Manipulative Skills	Developmental Movement Games of Low Organization Simple Team Games Rhythmic Activities Relays Individual and Dual Activities	Softball Type Activities Relays Track-and-Field Individual and Dual Activities

*High School Physical Education—One semester, 5 periods weekly. Each student may select 4 activities. ALL ACTIVITIES OFFERED TO BOTH BOYS AND GIRLS—SEPARATION IN CONTACT SPORTS PERMISSIBLE—(BASKETBALL)

Hamden (CT) Public Schools

Grade 7 **(Age 12)**	**Grade 8–9** **(Ages 13–14)**	*** Grade 10** **(Age 15)**	*** Grades 11–12** **(Ages 16–17)**
(Required) Tennis Soccer	(Selective) Touch Football Soccer Badminton Tennis Paddleball	(Required and Selective) 5-Week Units (Swimming Required) (Selective) Soccer Ice Skating Touch Football Handball-Paddleball Archery Tennis Badminton Gymnastics Golf Basketball Volleyball Rhythmic Activities Weight Exercising Softball Track-and-Field (Five periods weekly for one semester)	(Selective) 5-Week Units Swimming Senior Life Saving Soccer Ice Skating Touch Football Handball-Paddleball Archery Tennis Badminton Gymnastics Golf Basketball Volleyball Rhythmic Activities Weight Exercising Softball Track-and-Field (Five periods weekly for one semester)
Gymnastics Volleyball Basketball Weight Exercising Rhythmic Activities	Gymnastics Basketball Volleyball Weight Exercising Rhythmic Activities Street Hockey Paddleball		
Track-and-Field Badminton	Badminton Tennis Track-and-Field Softball		

Appendix E (continued)

SAMPLE 3

Physical Education Program Content

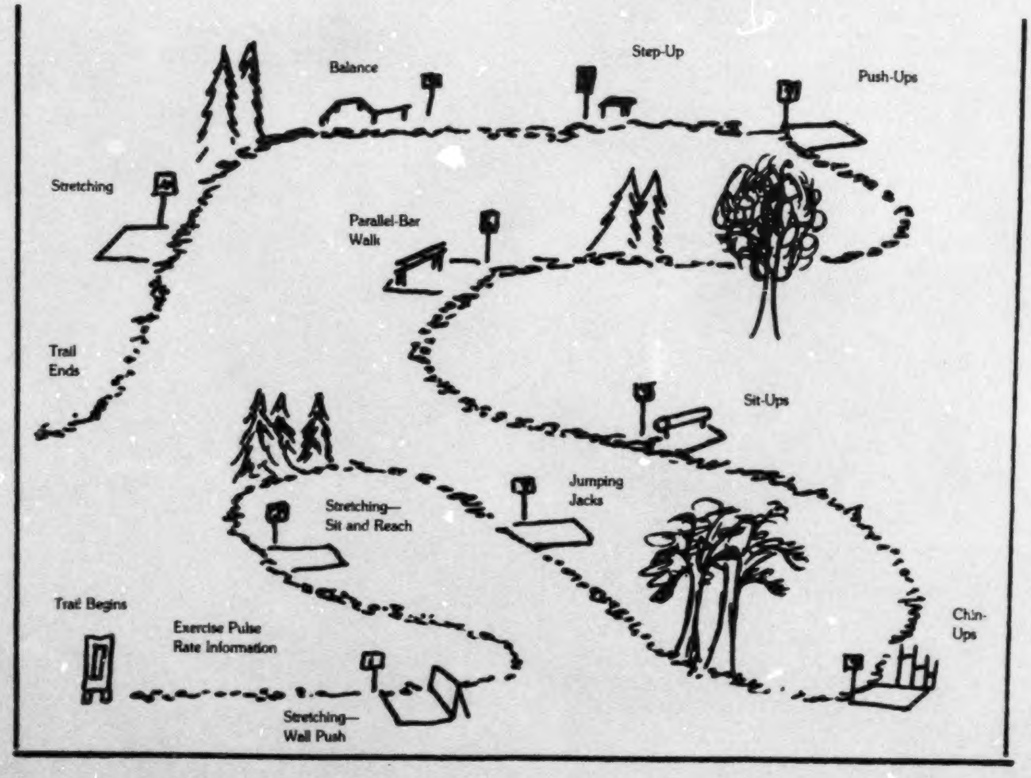
	Type of Sport			Grade Level												
Activity	Team	Indv.	Life Time	K	1	2	3	4	5	6	7	8	9	10	11	12
Angling/ Casting		X	X												X	X
Aquatics		X	X		X	X	X	X	X	X	X	X	X	X	X	X
Archery		X	X								X	X	X	X	X	X
Badminton		X	X								X	X	X	X	X	X
Basketball	X							X	X	X	X	X	X	X	X	X
Bicycling		X	X					X	X	X	X	X	X	X	X	X
Bowling		X	X							X	X	X	X	X	X	X
Dance/ Rhythms		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fencing		X	X											X	X	X
Field Hockey	X												X	X	X	X
Games/ Relays	X			X	X	X	X	X	X	X						
Golf		X	X									X	X	X	X	X
Gymnastics		X					X	X	X	X	X	X	X	X	X	X
Handball		X	X										X	X	X	X
Movement Exploration		X		X	X	X	X									
Orienteering		X	X												X	X
Physical Fitness/ Conditioning		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Recreational Group Games	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Riflery		X	X												X	X
Self-Defense		X	X								X	X	X	X	X	X
Soccer/ Speedball	X							X	X	X	X	X	X	X		
Softball/ Mushball	X		X					X	X	X	X	X	X	X		
Table Tennis		X	X					X	X	X	X	X	X	X		
Tennis		X	X					X	X	X	X	X	X	X		
Touch Football	X		X					X	X	X	X	X	X	X		
Track/ Field		X			X	X	X	X	X	X	X	X	X	X		
Tumbling/ Self-Testing		X		X	X	X	X	X	X	X	X	X	X			

Indiana State Department of Education
Curriculum Guide

Appendix F
Fitness Trails

Fitness trails, originally called vita parcours (vita meaning life and parcours meaning course), are becoming increasingly popular as a means of regular exercise in an outdoor setting.

The trails are usually 1¼ to 2 miles in length with 15 to 20 exercise stations located along the course. The trails are usually built to take advantage of the landscape and wind in and around parks, campuses and wooded areas. The trail itself is 4 to 6 feet wide and is covered with wood chips. The stations begin with stretching and warm-up exercises, progress to an overall workout of the major muscles of the body and end with cool-down exercises and stretching. Basic information about age and exercise pulse-rate range is posted at the beginning of the trail. The following sketch serves as a brief example. References appear on page 94.


Balance
Step-Up
Push-Ups
Stretching
Parallel-Bar Walk
Trail Ends
Sit-Ups
Jumping Jacks
Stretching— Sit and Reach
Trail Begins
Exercise Pulse Rate Information
Chin-Ups
Stretching— Wall Push

Appendix F (continued)

References

Calhoun, Michael. *The Parcourse Guide to Fitness: A Step Beyond Running.* San Francisco: Parcourse Books, P.O. Box 99589, 1981.

Carlisle, Suzanne. "Parcours," *Journal of Physical Education and Recreation.* 48:44, November-December, 1977.

Forge, Mexico. *Exer-Trail.* Kilgore Corporation, P.O. Box 565, Reedsville, PA 17084.

The Parcourse Fitness Circuit: The Fitness System for the Eighties. Parcourse, Ltd., The Fitness Company, 3701 Buchanan St., San Francisco, CA 94123

Webb, James. "Vita Parcours, American Style," *Journal of Physical Education and Recreation.* 46:24, October, 1975.

Appendix G
Movement Education Lesson

(Sample)

Class: First Grade
Theme: Elementary body management
Movement Idea: Weight bearing, weight reception, weight transference
Lesson Ideas: Weight control at different levels and body shapes; sequence work, ropes

Material	Points to Develop
Limbering: Move about room on feet, quickly and slowly. Freeze in different body shapes. Find different ways of moving about on hands and feet, in different directions. Can you move both hands at the same time and both feet at the same time?	Purpose of limbering is to warm bodies and prepare for lesson. Moving and stillness. Space and time elements. Allow for exploration. Develop children's ideas. Awareness of direction at a different level. Additional challenge in weight control. Consider time, weight, space, flow.
Training: Start in a curled position. Slowly stretch parts of your body to take weight on another body bit. Start in a stretched position. Quickly curl and roll. Try to come to standing position. Start in a standing position. Spring into the air. Land in control and slowly sink to the floor, taking weight onto another part of your body. Finish with a roll.	Purpose of the training part of the lesson is to develop the movement idea and to provide the children with a wide variety of movement experiences in which they think and feel. **Note:** Movement terms such as curling, stretching, taking weight, rolling, etc., have been movement ideas of previous lessons.
Sequence: Spring into the air. Land in control. Roll. Stretch onto other body bits. Curl. Roll to feet. Stand. Repeat.	A child's "movement vocabulary" is extended as verbal terms become kinesthetic awareness. Work on transition into and out of various positions as a lead up to sequence work.
Small Apparatus. Ropes: Knotted Ropes: Tossing and catching, sitting, standing. Tossing rope, making it land in a particular spot. Moving ropes around different body shapes. Moving rope with different body parts.	Sequence work provides for the development of "movement memory" e.g., Can you repeat the sequence in the same way? Develop according to observations. Have children observe one another. Discuss. Jump ropes are very versatile in providing movement tasks. Knotting ropes is a learning experience. Manipulative skills, hand-eye coordination, body awareness and control. Observe children and develop their ideas.

Appendix G (continued)

Material

Rope in circle on floor:
Moving into, out of, and around circle in different ways, e.g., curling inside, stretching across, etc. Moving on different body parts—one part, two parts, etc. Springing in and out with emphasis on directions—forward, backward, sideward.

Straight Rope:
Moving along rope in different ways. Moving from side to side in different ways. Springing from side to side, counting jumps on each side. Rolling along rope.

Rope shapes:
Place rope in any shape on the floor. Can you make the shape with your body? Can you make your first initial on the floor with the rope?

Limbering. Balls:
General ball handling skills, working on assorted tasks. Make body into different shapes. Move ball under, over, around body and body parts. Show how the body can do what the ball can do i.e., spin, roll, bounce.

Training:
Start low on the floor and slowly move upward, stretching as high as possible into one foot.
Sink back down to low position. Balance. Then lose balance, carefully collecting yourself onto other body bits. Balance on two body bits in a low shape, a high shape. Balance on one bit of your body in a curled shape, stretched shape.

Sequence:
Choose three different balances and show how smoothly and carefully you can move from one to the next, etc. Repeat.

Apparatus. Lind Climber:
Show movements on the apparatus: Over, under, through, around, between. Front, back, side movements. Slide, walk, hang, twist, turn. Curling, stretching, balancing. Try new ways of moving.

Task:
Move around from one part of the apparatus to another in as many different ways as possible without touching the floor or mats.

Points to Develop

Space awareness. Apply movement ideas. Weight over different body parts. Ask children to verbalize which body parts they are moving on. Emphasize directional concepts, body control, and balance. Try to develop quality in movement i.e., lightness in landing, smooth movements, variation in speed.

Note: Various movement ideas can be developed with the ropes adding an extra challenge i.e., spinning, twisting, turning.

Note: Small apparatus such as balls, wands, bean bags, badminton birds, etc., can be used as a warm-up in a guided exploration-type activity. This activity is being included in this lesson to show the possibilities.

Discuss: What is balance? What helps you to hold your balance? Stillness, tension, breathing. Emphasize body and weight control in moving from a high position to a low position. Body awareness—Where are the free bits of your body? What unusual bits of your body can you balance on? Can you move from one shape to another in control? Flow—practice the transition from move to move. Think about each position and how to get there.

Use of apparatus:
Acquaint children with new apparatus by having a few at a time working taking turns. Use simple tasks.
Emphasize: space to move in without crowding; controlling body; landing lightly on mats; using all parts of the apparatus. Think about what you are doing. Apply training ideas to the apparatus. Observe children and make suggestions to help them clarify their movements. Have children observe each other and discuss—"Show and Tell."

Tasks can be specific or general, depending on the experience of the children and the movement idea. They should provide for creativity within certain guidelines. The challenge can be greater to extend the children as they progress in skill and understanding.

Basic Guidelines for Physical Education
State Department of Education
Hartford (CT) 1973

Appendix H
An Interdisciplinary Approach

Physical education can be correlated with other areas of the curriculum when it seems appropriate. Integration may be achieved by planning activities around a concept or topic central to other disciplines.

Representative activities illustrate a conceptual approach.

Optional Concepts

Mathematics—Measurement, numbers, geometric forms, etc.

Art—Symmetry, color, etc.

Science—Force, motion, space time relationships, etc.

Social Studies—Interdependence, culture, custom, etc.

Language Arts—Nonverbal communications, mood, etc.

Music—Rhythm, tempo, etc.

MATHEMATICS

Measure the dimensions of various playing courts.

Learn methods of scoring in sports and games.

Measure sports performance, such as times, distances, and heights.

Create floor patterns in dance such as circles, squares, rectangles, and parallel lines.

Design tournament pairings.

Calculate averages from physical fitness and other performance tests.

Calculate percentages such as team standings, batting averages.

Make graphs and charts to illustrate pupil progress in an activity.

Compare European records in the metric system with those of Americans.

ART

Use art media such as figure drawings, modeling clay, pipe cleaners, wood, soap, etc., to illustrate physical performance.

Examine art masterpieces in painting and in sculpture that illustrate the lines and grace of body movements.

Make bulletin board displays and attractive posters publicizing physical education activities.

Perform folk dances of other lands and the different cultures.

Identify the origins of physical education activities such as archery and the discus throw.

Discuss the tradition of tournaments.

Compare the lifestyle of ancient Greeks and Romans with those of Americans.

Investigate the relationship of the Olympic Games and modern games.

Discuss the value of play as an activity full of meaning such as a child's way of life, a therapeutic agent for the handicapped, senior citizens, etc., and with powerful social, medical, educational, and recreational implications.

LANGUAGE ARTS

Write newspaper stories about the local sports program.

Write about personal physical education experiences.

Research the origins of games, rules, and sports figures.

Officiate a game.

Express words, phrases, etc., through movement and the use of music.

Read literary works that are concerned with physical expression and motor performance.

MUSIC

Listen to music that suggests movement.

Perform to music that suggests movement such as waltzing, skipping, and the whole range of basic dance patterns.

Participate in singing games with physical actions.

SCIENCE

Relate physical fitness in terms of muscular strength and muscular endurance to "work capacity" as measured by tests of cardiorespiratory endurance.

Measure vital capacity and correlate it with changes in physical performance.

Study reaction time and movement time and how they are modified by temperature, motivation and fatigue, physical conditioning, and sports training.

Study body function by analyzing the motor performance of individuals under different conditions.

Relate body function to conditions such as obesity, malnourishment, upper respiratory difficulties, coronary heart attacks, and performance limitations in team and individual sport activities.

Relate the laws of motion to physical activities.

Use a variety of musical instruments to illustrate how sounds differ in pitch, volume, and quality.

Investigate the application of force when hitting an object with another object.

Indiana State Department of Education
Curriculum Guide

Appendix I
Special Physical Education Student Profile

(Sample)

DATE: ____________________

NAME: ______________________________ AGE: ____________ SCHOOL: ____________________

TYPE OF HANDICAP: ____________________

____

____

____

*I.E.P. YES____ NO____

Regular Physical Education Program YES____ NO____

Adaptive Physical Education Program YES____ NO____

Is child receiving any other agency help? (Such as Newington, O.T., P.T. Services, etc.) If yes, explain:

____

____

____

____

Type of Activities Given in Adaptive Program (General):

____

____

____

____

SCHOOL TESTS: ____________________ DATE: ____________ RESULTS: ____________

____________________ ____________

____________________ ____________

OTHER TESTS: ____________________ DATE: ____________ RESULTS: ____________

____________________ ____________

____________________ ____________

COMMENTS: ____

____

*Individualized Education Program

East Hartford (CT) Public Schools'
Special Physical Education

Appendix J
Individual Education Program (IEP)

(Sample)

NAME(S): Dawn Thrower—Sample A Individual Education Program (IEP)

PRESENT LEVEL OF PERFORMANCE: Should reflect relevant information and dates to justify the annual goal.

Dawn does not maintain visual contact with the target when throwing underhand. Her arm is swung out to the side rather than below the shoulder and she does not step forward on the opposite foot on transfer weight during the throw.

ANNUAL GOAL: To improve fundamental motor skills; understand throwing.

INSTRUCTIONAL OBJECTIVES	METHODS/MATERIALS	ASSESSMENT METHOD/ CRITERION
A. Upon request, Dawn will throw a softball-sized whiffle ball at a 3 x 3 foot target from a distance of 10 feet, and strike the target 3 out of 5 times.	Modification of the regular physical education program three times per week for 30 minutes.	Teacher observation: 3 out of 5 times.
B. Complete objective A, with eyes focused on the target.	Special education enrichment two times per week for 20 minutes.	
C. Complete objective A with the throwing arm swung below the shoulder.	Balls of assorted size, weight, color and texture.	
D. Complete objective A with a transfer of weight and a step forward while throwing.	Targets of various size, shape, distance and angle.	

Mansfield (CT) Public Schools

Appendix K
Activity Rating Scale for Learning Disabled Children

The internal characteristics of an activity which are directly relevant to learning disabilities are described below in 21 categories. The activities should be rated for the internal strength of that characteristic, on a scale ranging from "the activity requires none of that characteristic" to "the activity totally requires that characteristic."

The purpose of the scale is to guide the teacher in the sequencing of activities. For example, if a student possesses a poor ability to recall information, then the teacher would first choose activities which required little recall. As the student improves and can succeed at tasks requiring more stringent recall, the teacher can choose activities which require greater amounts of recall power.

Activities may be added as appropriate to the activity characteristics listed below.

Attention span—The activity flows, motivating students to attend.
Complexity—The activity has many components to attend to.
Memory—The activity requires the student to recall information.
Higher cognitive processes—The activity requires the student to synthesize, analyze and/or evaluate information.
Social interaction—The activity requires that the student verbally and/or nonverbally interact with his/her classmates.
Cooperation—The activity requires that the student work with other students to successfully complete a common goal.
Indirect competition—The activity requires that the student compete against a previous personal performance or a teacher-set standard.
Direct competition—The student must compete against classmates toward a goal.
Nonverbal social perception—The student must understand gestures and expressions.
Right-left discrimination—Knowledge of right and left.
Body parts—Knowledge of the parts of one's body.
Directionality—The student must move in many planes of motion.
Dynamic balance—Locomotor movements are required.
Static balance—Still postures are required.
Hand-eye coordination—Visual tracking and perception with an upper limb motor response is required.
Foot-eye coordination—Lower motor limb motor responses.
Visual tracking
Repetition—The activity repeats similar movements.
Perseveration—The activity involves nonrelated stimuli in the environment.

Appendix L
Equipment and Supplies

Elementary Physical Education

Supplies
- Bamboo Poles—6′–8′
- Basketballs—rubber
- Batting Tees—rubber
- Bean Bags—4″ x 6″
- Cones—markers
- Footballs—intermediate size
- Hoops
- Jump Ropes—7′–8′ primary; 8′–9′ intermediate
- Long Jump Ropes—24′–30′
- Nerf Balls
- Pushball—24″–36″
- Record Player and Tapes; Speaker and Records
- Rubber Playground Balls—5″, 6″, or 7″ diameter; 8½″ diameter; 10″ diameter
- Rubber Soccer Balls
- Softball Bases—rubber
- Softball Bats—wooden
- Softballs—plastic, rubber and/or "softee"
- Stopwatch
- Tape Measure—50′
- Tumbling Mats—3′ x 5′ or 4′ x 6′
- Volleyball Nets
- Volleyballs—rubber
- Wands

Equipment
- Air Pump
- Balance Beam
- Basketball Backstops
- Crossbars—high jump
- High Jump Standards
- Horizontal Bars
- Horizontal Ladders—5′ high for primary and 5½′ for taller children
- Horseshoe Sets
- Jungle Gym
- Line Marker
- Manila Climbing Ropes—2½″ diameter
- Scales
- Side Horse
- Soccer Goal Posts
- Tether Ball Poles
- Trampoline
- Vaulting Horse
- Volleyball Standards
- Triple Horizontal Bar with Three Fixed Heights—3′, 4′, 5′

Secondary Physical Education

Supplies
- Air Pump or Inflator
- Archery Arrows, Quivers, and Targets
- Badminton Rackets, Shuttle Cocks
- Basketballs
- Batons
- Bows—20, 30, 40 lbs.
- Cage Ball—3′ diameter

Cones—field markers
Driving Mats
Field Hockey Balls, Sticks
Field Markers
Finger Tabs—arm guards
Flags—3" x 18" piece of cloth or canvas
Footballs
Golf Balls—plastic, regular
Golf Clubs—wood, 3 irons, putter
Golf Tees
Gym Bowl Kits
Jump Ropes—individual and
  long ropes
Measuring Tape—50–100′
Medicine Balls
Paddle Balls, Rackets
Pinnies
Record Player, Speaker, Records
  and Tape
Rubberball Repair Kit
Shin Pads
Soccer Balls
Softball Bases—rubber and regulation
Softballs, Bats, Gloves
Starting Gun—blanks
Sticks
Stop Watch
Street Hockey Equipment
Table Tennis Sets
Target Faces, Stands
Tennis Balls, Nets, Rackets and Presses
Volleyballs
Weight Training Equipment
Wigwam Drum
Woodblock—gong, cymbal

Equipment
Air Pump or Inflator
Archery Targets, and Golf Driving
  Net Uprights
Backboards for Basketball, Tennis
  and Handball
Backstops for Softball and Baseball
Climbing Ropes
Crossbars—high jump
Discus
Goal Uprights for Football, Soccer,
  and Field Hockey
Goalkeeper Equipment
High Bar
High Jump and Pole Vault Standards,
  and Pole Vault Box
Horizontal Bars
Javelins
Overhead Ladder
Parallel Bars and Unevens
Peg Boards
Scales
Shot-put Balls—8, 12, 16 lb.
Side Horse
Springboard
Standards for Tennis, Volleyball, and
  Badminton; Mats for Wrestling and
  for placement around apparatus
Track and Field Equipment—combination low and high hurdles
Trampoline
Tumbling Mats—4′ x 6′ and 5′ x 10′
Vaulting Box or Swedish Box

Special Areas

Corrective and/or adaptive areas
Ballet Wall Rail
Full-length Mirrors
Mats
Small Weight Lifting Equipment—
  ankle weights—2–5 lb. hand
  weights
Steel Bars
Wall Weights and Others

Dressing and Locker Areas
Hair Dryers
Lockers for Storage and for Class Use
Locks
Mirrors
Wide Benches

Emergency Care Room
Cots
Hydrotherapy and Electric Equipment
Splints
Stretchers

Appendix M
Learning Outcomes

	3–4–5 year olds	6–7–8 year olds
Body management	Will solve problem of moving different parts of body by running, crawling, hopping or rolling.	Will solve problem related to weight bearing by standing on one foot, arms and knees, or hands and feet.
Rhythms	Will execute task related to contrasting movements by traveling very lightly, moderately heavily or very heavily with precision.	Will move to rhythm instruments by traveling to the beat—fast, slow, medium and/or high-low in good form.
Manipulative skills	Will execute task related to tossing and catching by tossing ball at three different heights and catching it with 100 percent accuracy.	With a single piece of apparatus and a partner, pupil will play toss and catch, one bounce or two bounces, toss and catch over or through something.
Apparatus stunts and tumbling	Will hop the length of balance beam forward, sideward and backward.	Will climb rope efficiently using hands and feet, hands and knees or hands only.
Physical fitness	Will demonstrate preactivity exercises with proper form and proficiency.	Will demonstrate understanding of basic fitness terms, such as bending, stretching, strength and endurance activities.

9–10–11 year olds	12–13 year olds	14–15 year olds	16–17–18 year olds
In task involving proper landings, will land and stay in place by bending knees.			
Will correctly copy movements of another to music.			
Will dribble a ball with one preferred hand continuously for 15 seconds.			
Will climb up one rope to a height of 15 feet, transfer to another rope and descend.			
Will score at or above the 50th percentile on the American Alliance for Health, Physical Education, Recreation and Dance Fitness Test (AAHPERD).	Will score at or above the 50th percentile on the AAHPERD health-related fitness test.	Will explain the meaning of oxygen consumption, execute a test for c-v fitness and convert results of test into oxygen consumption data.	Will score at or above the 50th percentile on the AAHPERD health-related fitness test.

Appendix M (continued)

Learning Outcomes

	3–4–5 year olds	6–7–8 year olds
Cognitive	When asked to demonstrate abstract symbols, will create recognizable letters and numbers by moving body in various ways.	Will use movement terminology to describe movement experiences.
Affective	Will demonstrate self-confidence in movement and a willingness to participate in activities.	Will respond positively toward interaction with peers and be eager to participate in group activities.
Lead-up game skills		
Aquatics		
Dance		
Individual and dual activities		
Team sports		
Outdoor education		

9–10–11 year olds	12–13 year olds	14–15 year olds	16–17–18 year olds
Will identify correctly in writing ten sports-related career options.	Will answer correctly 70 percent of the questions on a volleyball knowledge test.	Will answer correctly 70 percent of the questions on a volleyball knowledge test.	Will score 75 percent or or better on a physical education knowledge test.
Will be able to assist less skilled individuals through a reciprocal learning task.	Will demonstrate a positive perception of self as measured by teachers' rating scales.	Will respond positively toward physical activity as measured by the teachers' attitude inventory scale.	Will respond positively toward physical activity as measured by the pupil's self-initiated daily activity schedule.
Will shoot a basketball at goal with 50 percent accuracy.			
Will tuck and float for five seconds.	Will demonstrate 25-yard flutter kick with a kickboard by treading in straight line and using proper form.	Will execute back crawl by swimming in straight line for 25 yards using proper form.	Will swim breast stroke continuously for 50 yards using proper form.
	Will demonstrate the polka by stepping and hopping in the proper sequence to a musical beat.	Will demonstrate cha-cha dance patterns with proficiency.	Will perform an eight-step pattern of disco dancing with proficiency.
	Will explain the principle that a moving body mass exerts a greater force than a stationary body mass and will demonstrate the application of the principle by standing and jumping, running and jumping, striking an object with and without backswing.	Will execute two out of four drop shots in badminton.	In tennis, will execute overhead serve by placing seven out of ten balls in proper serving court.
	In softball, will execute two out of six bunt attempts successfully.	To demonstrate the basketball driving lay-up shot, will place ball in basket three out of five times.	To demonstrate a soccer corner kick, will hit a target in the area of the goal four out of eight tries.
		Will demonstrate ability to head compass and follow compass-heading instructions by navigating correctly to three checkpoints.	Will demonstrate knowledge of local hiking trails, backpacking techniques, and safety precautions by scoring 70 percent or better on a written teacher-developed test.

Appendix N
Desirable Experiences

	3–4–5 year olds	6–7–8 year olds
Body management	Maintain good body mechanics; control and balance body in different positions; rhythmic movement; coordination on floor, in air and suspended; efficient use of force in locomotor and nonlocomotor experiences; perceptual-motor competency; control two sides of the body separately and simultaneously.	Same as pre-primary program. Focus on themes, not specific skills. Exploratory process shifts from self-initiated to teacher guided. Balance on one hand and one foot; on head and two feet or two hands; fall and roll; run and jump; support on apparatus with arms only, feet only; go over, under and balance on something.
Rhythms	Educational dance and rhythmic activities with focus on exploration in locomotor or nonlocomotor movements, identification rhythms, dramatization and singing games.	Educational dance continues with same experiences found in pre-primary program with children now working with a partner. Rope jumping, musical games, simple folk dances. Walking, hopping, jumping, skipping.
Manipulative skills and experiences	Explore and seek understanding about handling balls by catching, throwing, bouncing, rolling and dribbling. Investigate different ways of batting a ball with the hand. Balance bean bag, toss and catch, move ball with feet.	Basically the same as pre-primary level. Adding partner work, simple ball games and relays. Increased proficiency in skills like striking balls, rolling hoop, tossing and catching ball.

9–10–11 year olds	12–13 year olds	14–15 year olds	16–17–18 year olds
Basically the same as pre-primary. Increased emphasis on guidance in difficult and challenging solutions and proficient performances. Opportunities to combine tumbling, dance, rhythmic movement into sequences. Gymnastic activities using bars, beams, vaulting boxes. Jumping, leaping, somersaulting, landing and staying in place.			
Same as upper primary program. Pupils work alone or in small groups and develop patterns of their own. Folk and square dance, musical games, rope jumping, roller skating.			
Basically the same as upper primary level. Transferring learned skills to more complex activities. Dribble ball, shoot basket, balance bean bag on head, bat ball.			

Appendix N (continued)
Desirable Experiences

	3–4–5 year olds	6–7–8 year olds
Apparatus, stunts and tumbling	Apparatus and tumbling; climbing, hanging, balancing, and a variety of stunts—side rolls, forward roll, back roller, see-saw and kangaroo.	Basically the same experiences as in the preprimary program but more teacher guided. Increased proficiency of specific skills. Emphasis on simple partner stunts, backward curl, forward roll, headstand.
Physical fitness	To develop strength and endurance in large muscles, cardio-respiratory endurance and flexibility. Bend and touch toes; lie down and sit up; climb a ladder.	Strength and endurance activities—bending, stretching, sit-ups—should be continued.
Aquatics		
Dance		
Individual and dual		

9–10–11 year olds	12–13 year olds	14–15 year olds	16–17–18 year olds
Include activities of upper primary program with added skills such as forward roll combinations, backward roll combinations, knee jump to standing, headstand variations, back extension, handstand, cartwheel, headspring, dive forward roll and forearm stand. Introduction to track and field. Lead-up game experiences like touch football, circle soccer, kickball, softball, volleyball, soccer. Aquatics—floating, swimming, water and boat safety.			
Relate pulse rates before and after exercise. Assess flexibility on AAHPERD health-related fitness test. Discuss body composition, lung capacity.	Calculating rate of oxygen consumption, pulse recovery rate after exercise, lean body weight; assess flexibility, strength and endurance; weight training, jogging, postural exercises.	Components and principles of fitness, weight training, jogging, stretching, nutrition, obstacle courses, exercise trails and rope jumping.	Maintain optimal levels of fitness. Emphasis on many resources available that contribute to well-being. Stress nutrition.
	Water safety, diving, water games and stunts, synchronized swimming and life saving.	Intermediate swimming, relays, starts and turns, swimnastics, plus continuing previous activities.	Continue diversified program. Stress contribution to lifelong fitness.
	Recreational dance, popular dance steps, folk and square dance, modern, jazz, ballet, social.	Continue to improve and refine.	Emphasis on improvement. Provide opportunities for creativity and composition.
	Gymnastics, tumbling, archery, bowling, golf, skiing, ice skating, roller skating, fly and bait casting, canoeing, outdoor education, jogging, track and field. Badminton, handball, paddle ball, tennis; table or deck tennis; wrestling; shuffleboard; frisbee and horseshoes.	Beginning of specialization. Develop understanding and appreciation for various sports as they relate to well-being.	Improve and refine sports techniques and skills for adult life. Specialize.

Appendix N (continued)
Desirable Experiences

	12–13 year olds	14–15 year olds	16–17–18 year olds
Team sports	Hockey; field, floor, ice hockey; speedball, basketball, softball, volleyball and touch football.	Select team sports in which to specialize. Learn to develop and apply strategy to game situations.	Maximize proficiency in selected sports.
Outdoor education		Camping, hiking, bicycling, canoeing, rappelling, orienteering, ropes course, adventure programs.	Emphasize importance of skills to life-long activity.

Footnotes

1. The American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD, *Basic Stuff* (Reston, VA: 1981).
2. D.W. Edington and L. Cunningham, *Biological Awareness: Statements for Self-Discovery* (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1975).
3. Charles B. Corbin, *Becoming Physically Educated in the Elementary School* (Philadelphia: Lea & Febiger, 1976).
4. The American Alliance for Health, Physical Education, Recreation and Dance, *Lifetime Health-Related Physical Fitness Test Manual* (Reston, VA: 1980).
5. The American Alliance for Health, Physical Education, Recreation and Dance, *Youth Fitness Test Manual* (Washington, DC: 1976).
6. Ann Jewett and Marie Mallan, *Curriculum Design: Purposes and Processes in Physical Education Teaching-Learning* (Washington, DC: The American Alliance for Health, Physical Education, Recreation and Dance, 1977).
7. New Games Foundation, P.O. Box 1901, San Francisco, CA 94120.
8. Pickle Ball, Inc., 3131 Western Avenue, Seattle, WA 98121.
9. Project Adventure, Hamilton-Wenham Regional High School, Hamilton, MA 09136.
10. Korfball, Texas Korfball Association, 4513 Vance Road, Fort Worth, TX 76118.
11. Global Ball, Global Games Unlimited, Inc., 4825 Penn Avenue South, Minneapolis, MN 55409.
12. United States Olympic Committee, *The Olympics: An Educational Opportunity*. Olympic House, 1750 East Boulder Street, Colorado Springs, CO 80909.

13. Fait, Hollis and John Dunn, *Special Physical Education: Adapted, Individualize Developmental*, 5th edition. (Philadelphia: Saunders College Publishing, 1982)

14. Regulations Concerning Children Requiring Special Education Section 10–76a 10–761, inclusive, of the General Statutes, 1980.

15. Doolittle, John H., "Adaptation of Games and Activities," *Motor Disabilities Limitations: An Individualized Program*. (Oakhurst, NJ: Township of Ocean Sch District: 1976).

Glossary

Adapted Physical Education	A diversified program of developmental activities, games, sports, and rhythms suited to the interests, capacities, and limitations of students with disabilities who may not safely or successfully engage in unrestricted participation in various activities of the general physical education program
Achievement Standards	Criteria for accomplishment based on such factors as age, weight, grade, or other classification index
Affective Domain	Interest, attitudes, values, appreciations and adjustment of the individual. The affective behaviors emphasize the emotional processes, beginning with simple behavior of receiving, responding, valuing, organizing, and characterizing.
Agility	The ability to move the body or its parts in any direction quickly and easily
Balance	The ability to assume and maintain any body position against the force of gravity
Behavioral Objectives	Specific unambiguous statements of desired learner performance. They specify what the learner is to say or do. They state what the teacher expects the students to be able to do.

Bilateral Movement	Those movements which involve the use of both sides of the body
Body Image	The individual's concept of his body and its parts
Cardiorespiratory Endurance	A basic component of physical fitness, the ability of the heart and lungs to maintain efficient function during and after vigorous exercise
Circuit Training	The use of a series of stations that have designated exercises or activities which are designed to develop and maintain physical fitness
Cognitive Domain	The mental processes. It includes knowledge, comprehension, application, analysis, synthesis, and evaluation.
Common Denominator	The many specific or basic concepts of movement which can be applied to movement tasks and sport skills
Cooperative Evaluation	An evaluation in which the student, in company with his peers and teacher, can determine objectively the quality and quantity of his performance
Coordination	The ability of the body to integrate the actions of the muscles of the body to accomplish in specific movement or a series of skilled movements in the most efficient manner
Core Activities	Those experiences which are required of all students
Correctives	The means for remedying disabilities through individually planned exercise programs
Course of Study	A description of the activities which are included in the program, arranged as sequential learning experiences from grade to grade
Depth Perception	Spatial orientation involving the ability to perceive adequately and to judge accurately distances from both near and far
Developmental	Refers to means used to increase exercise tolerance of the weak and ill through individually planned and progressively vigorous programs
Directionality	An awareness of space outside of the body involving knowledge of directions in relation to right and left, in and out, and up and down
Elective Program	One in which the student is permitted a choice of activities. In this suggested program, he is permitted a choice within a required program.

Ergogenic Aids	Nutritional, physical, and pharmacological agents that are supposed to increase the capacity of bodily and mental effort, especially by eliminating fatigue symptoms
Exceptional Children	Those who deviate significantly from the norm, either physically, mentally, or emotionally
Extramural	Within the context of physical education and recreation, *extramural* refers to a type of sports competition in which participants on teams representing two or more schools compete on the campus of one school
Eye-Body Coordination	Has to do with the ability of the eyes and the total body to function together as a whole
Eye Fixation	The ability of the eyes to converge together and to focus together on a point, and also to change the focus from one point to another. Sometimes referred to as eye coordination.
Eye-Foot Coordination	The ability to use one's eyes and a foot or feet together to accomplish a task
Eye-Hand Coordination	The ability to use one's eyes and a hand or hands together to accomplish a task
Fatigue	A condition that follows physical activity or emotional strain and which results in an accumulation or buildup of waste materials and fluids, such as lactic acid, carbon dioxide, and water in muscles of the body.
Fine Motor Coordination	Development of the muscles to a degree resulting in the ability to perform specific small movements
Flexibility	The ability to move a part or parts of the body in all directions without evidence of tightness of muscles
Flow	Continuity of movement, connecting one part of the movement to the next smoothly, or connecting one movement to the next with no interruption
Force	The strength that moves the body, the amount of strength or tension necessary or advisable to execute a given movement
Gross Motor Coordination	Development of the skeletal muscles so as to produce efficient total body movement

Guided Exploration	A child being creative and doing his "thing" but within a certain framework so that the teacher sets the task which is limiting at either end
Gymnastics	Physical education activities using gymnasium apparatus
Individualized Instruction	Programming and teaching the individual according to his developmental needs. Particularizing or adapting the program to the special needs or circumstances of the individual.
Interdisciplinary Approach	Two or more academic disciplines interacting and combining efforts to solve a task or problem
Interval Training	A series of repeated efforts in movements which are executed vigorously at a timed pace and are alternated with measured recovery periods of lessened activity and energy output
Intramural	Within the context of physical education and recreation, *intramural* refers to a type of competition in which all of the participants are identified with a particular school. All are encouraged to participate in some activity.
Interscholastic Athletics	Activities which offer enriched opportunities for the more highly skilled individuals to represent a school in competition with representatives from other schools and which involve season-long schedules, organized practices, league competition, and championships
Kinesiology	The science that deals with the movement of the human body
Kinesthesis	One's awareness of muscular movement and expenditure of energy as a skill is performed
Laterality	Internalizing the awareness of the difference between right and left and how far right and how far left various activities are centered. The ability to control the two sides of the body together or separately. The motor basis for spatial concepts.
Lifetime Sports	Activities with carryover value for adult life
Locomotor Movements	Basic movements performed while moving the body from place to place
Manipulative Activity	An activity in which a child handles some kind of play object, usually with the hands, but which can involve the feet and other parts of the body

Glossary (continued)

Maturation	The process of becoming mature. Maturation occurs as a result of physiological changes which are produced naturally as age and experience increase.
Modular Scheduling	Scheduling using modules or specific divisions of time, usually 15, 20, or 25 minutes in length
Motor Readiness	The development of the neuromuscular systems to a degree that enables effective control and operation of the body
Motor Skills	Skills needed for development of axial (nonlocomotor) and locomotor movements, or combinations of both
Movement Education	That part of the physical education program which emphasizes helping the child to learn about his unique movement behavior
Movement Exploration	That method of teaching physical education which employs teacher guidance, pupil discovery, and problem solving
Movement Memory	Being able to recall a movement sequence that was just performed and the way it was done and what part of the body came into play
Movement Sense	The correlation of many experiences to apply when needed
Movement Skills (both functional and expressive)	Functional movement is the everyday kind of movement like walking or running, or specific sport skills such as throwing, catching, or rolling. Expressive movement would be in terms of communication through movement, such as expressing an imagined feeling or idea in terms of dance.
Movement Theme	An idea upon which a lesson is developed. Sample themes may be stretching the body, flight, or balance. The teacher presents tasks to students based on the selection of the theme he or she wishes to use. Students then respond through appropriate movement.
Movement Vocabulary	Words used to describe movement of the body, such as stretching, curling, rolling, and the qualities of such movement, including fast, slow, light, and heavy. The child demonstrates understanding of these words through movement responses to tasks.
Muscular Endurance	The capacity of the muscles to continue strenuous activity without undue fatigue
Natural Movements	Movements which are instinctive, automatic, and self-motivating

Opposition in Movement	Maintenance of body balance by shifting the body weight and by moving the opposing arm and leg alternately in opposite directions
Organic Efficiency	The degree of effectiveness in functioning of the vital organs
Outdoor Education	A learning process taking place under leadership in natural surroundings which are in or about the outdoors
Perception	The ability of an individual to attach meaning to objects, events or situations
Perceptual Motor Skills	Skills which indicate the interrelationships between the perceptual or sensory processes and motor activity and the ability of the individual to receive, interpret, and respond to stimuli, either internal or external. Perceptual motor learning involves all senses—seeing, hearing, touching, tasting, smelling, and moving or kinesthesis.
Perceptual Training	Assisting children to explore and develop their body parts and coordination of head, arms, torso, and legs to gain greater eye freedom and skill of movement, balance, eye-hand coordination, eye movement, form perception, and visual memory
Phrasing	A musical term used in rhythmic activity to denote a degree of completeness in composition and movement
Playdays	Days when pupils from two or more schools participate in one or more activities without retaining the identity of the school
Physical Fitness	The degree to which the body can meet the physical demands for everyday living, as well as the ability to meet emergencies
Psychomotor Domain	Muscular action believed to ensue from prior conscious mental activity and which requires neuromuscular coordination. The action includes imitation, manipulation, precision, articulation, and naturalization.
Power	The capacity of muscles to move the entire body or any of its parts with explosive force. It is dependent on muscular strength and coordination.
Progression	Planned developmental activities arranged and taught in order of difficulty, from the simple to the complex
Proprioception	Being consciously aware of the positioning of body segments, muscle tension, and visceral pressures

Glossary (continued)

Remedial Exercises	Exercises done for the specific purpose of correcting some abnormality
Required Program	Those offerings or core activities that all students must take
Rotate	To move from one activity or space to another in an orderly fashion
Self-image	The psychological concept of how a person perceives himself as a person. It is his own appraisal of his personal worth and value.
Self-testing	Activities in which children can measure their own achievement, such as hitting a target with a ball, or measuring their own progress
Social-Emotional Development	An individual's interaction with others and the feelings involved
Spatial Orientation	The ability to select a reference point to stabilize functions and to organize objects into correct perspective. It involves knowledge of the body and its position, as well as the positions of other people and objects in relation to one's body in space.
Special Physical Education	Specialized programs of physical activities for the handicapped
Stamina	The ability to continue activity at more than normal speed, with quick recovery upon the halting of the activity. Similar to cardiorespiratory endurance.
Stress	The emotional, mental and physical pressure, pull, or other force exerted upon one person or thing by another person or thing
Sustained Movements	Motor skills executed consecutively for a number of times or continued for an interval of time
Symmetrical Body Control	The use of bilateral movements, evidenced by pupils using both arms and legs together or all of the body in such activities as skipping and rope jumping
Taxonomy	The orderly classification of things according to their natural relationship. A study of the general principles of scientific classification.

Tort Liability	A wrongful act, other than a crime or breach of contract, whereby another receives injury in person, property and/or reputation. A tort may arise in three ways: (1) act in which one intentionally harms another, (2) act which is contrary to law, (3) an act of unintentional injury.
Tracking	The visual ability to follow the path of a moving object through space
Varsity	A selection of the most highly skilled players to represent the school in interschool games
Visual Discrimination	The ability to visually distinguish between objects by their particular features

Bibliography

Chapter 1

Annarimo, Anthony, C. Cowell, H. Hazelton. *Curriculum Theory and Design in Physical Education*, 2nd edition. St. Louis: C.V. Mosby Co., 1980.

Pate, Russell and Charles Corbin. "Implications for the Curriculum." *Journal of Physical Education and Recreation*, 52 (January 1981): 36–38.

Rothstein, Anne, R.T. Trimble and M. Mullan. "Basic Stuff Series I and II." *Journal of Physical Education and Recreation*, 52 (February 1981): 35–39.

Chapter 2

The American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD). *Basic Stuff*. Reston, VA: 1981.

Brooks, George, editor. *Perspectives on the Academic Discipline of Physical Education*. Champaign, IL: Human Kinetics Publishers, 1981.

Fox, Edward and Donald Mathews. *The Physiological Basis of Physical Education*, 3rd edition. Philadelphia: Saunders College Publishing, 1981.

Rivens, Richard. *Foundations of Physical Education: A Scientific Approach*. Boston, Houghton Mifflin Co., 1978.

Zeigler, Earle, et al. "Cross Cultural Dimensions of Scientific Inquiry." *Journal of Physical Education and Recreation*, 51: (November–December 1980): 39–52.

Chapter 4

Alexander, Albert A. *Basic Guidelines for Physical Education*, Bulletin 117. Hartford, CT: Connecticut State Department of Education, 1973.

The American Alliance for Health, Physical Education, Recreation and Dance. *Nutrition for Athletes*. Reston, VA: 1980.

The American Alliance for Health, Physical Education, Recreation and Dance. *Sports Safety Monograph Series*. Reston, VA: 1980.

Burton, Elsie C. *The New Physical Education for Elementary School Children*. Boston: Houghton Mifflin Co., 1977.

Corbin, Charles B. *Becoming Physically Educated in the Elementary School*. Philadelphia: Lea & Febiger, 1976.

Katch, Frank and W. McArdle. *Nutrition, Weight Control and Exercise*. Boston: Houghton Mifflin Co., 1977.

Malina, R. *Growth and Development: The First Twenty Years in Man*. Minneapolis: Burgess Publishing Co., 1975.

Riley, Marie, K. Barrett, T. Martinek and Mary Ann Roberton. *Children and Youth in Action: Physical Activities and Sports*. Washington, DC: U.S. Government Printing Office, November 1980.

Teeple, J.B. and J. Wirth. "Updated Bibliographies: Physical Growth and Motor Development." *The Physical Educator*, 34: 214–220.

Vannier, Maryhelen and Hollis F. Fait. *Teaching Physical Education in Secondary Schools*, 4th edition. Freehold, NJ: W.B. Saunders Publishing Co., 1978.

Werner, Peter. "Teaching Language Through Movement." *The Journal of Physical Education and Recreation*. February 1981, pp. 24–25.

Werner, P.H. and E.C. Burton. *Learning Through Movement*. St. Louis: C.V. Mosby Co., 1979.

Zaichkowsky, Leonard. *Growth and Development*. St. Louis: C.V. Mosby Co., 1980.

Chapter 5

Humphrey, James and Joy Humphrey. *Help Your Child Learn the 3R's Through Active Play*. Springfield, IL: Charles C. Thomas, 1980.

Mosston, Muska. *Physical Education: Styles of Teaching*, 2nd edition. Columbus, OH: Charles E. Merrill Publishing Co., 1981.

Singer, Robert and Walter Dick. *Teaching Physical Education: A Systems Approach*, 2nd edition. Boston: Houghton Mifflin Co., 1980.

Chapter 6

Barrow, H.M. and R. McGree. *A Practical Approach to Measurement in Physical Education*. Philadelphia: Lea & Febiger, 1979.

Baumgartner, T.A. and A.S. Jackson. *Measurement for Evaluation in Physical Education*, 2nd edition. Boston: Houghton Mifflin Co., 1981.

Bloom, B.S., et al. *A Taxonomy of Educational Objectives: Handbook I, The Cognitive Domain*. New York: David McKay Co., Inc. 1956.

Clark, W.W. *Application of Measurement to Health and Physical Education*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1976. .

Fleishman, E. *The Structure and Measurement of Physical Fitness*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1964.

Harrow, A.J. *A Taxonomy of the Psychomotor Domain*. New York: David McKay Co., Inc., 1972 (educational objectives).

Jensen, C.R. and C.C. Hirst. *Measurement in Physical Education and Athletics*. New York: Macmillan Publishing Co., Inc., 1980.

Johnson, B.L. and J.K. Nelson. *Practical Measurements for Evaluation in Physical Education*. Minneapolis: Burgess Publishing Co., 1979.

Kirkendall, D.R., J.J. Gruber and R.E. Johnson. *Measurement and Evaluation for Physical Educators*. Dubuque, IO: W.C. Brown Co., Publications, 1980.

Krathwhol, D.R., B.S. Bloom and B. Masia. *A Taxonomy of Educational Objectives: Handbook II, The Affective Domain*. New York: David McKay Co., Inc. 1964.

Mathews, D.K. *Measurement in Physical Education*. Philadelphia: W.B. Saunders Co., 1978.

Montyoe, H.J., editor. *An Introduction to Measurement in Physical Education*. Boston: Allyn and Bacon, Inc., 1978.

Safrit, M. *Evaluation in Physical Education*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1980.

Verducci, F.M. *Measurement in Physical Education*. St. Louis: C.V. Mosby Co., 1980.

Chapter 7

Adams, Ronald C., et al. *Games, Sport and Exercise for the Physically Handicapped*, 2nd edition. Philadelphia: Lea & Febiger, 1975.

Cratty, Bryant. *Adapted Physical Education for Handicapped Children*. Denver, London: Love Publishing Co., 1980.

Czajkowski, Laura, et al. "Directions in Adapted Physical Education." University of South Dakota: Center for the Developmentally Disabled, 1980.

Fait, Hollis and John Dunn. *Special Physical Education: Adapted, Individualized, Developmental*, 5th edition. Philadelphia: Saunders College Publishing, 1982.

The Education of All Handicapped Children Act of 1975 (P.L. 94–142) 20 U.S.C. 1401 et. seq. 45 C.F.R. Part 100.

Gerich, Michael. "Mainstreaming the Handicapped Child." *The Bulletin*. Connecticut: Connecticut Association for Health, Physical Education, and Recreation (CAHPER), March 1981.

Peacock-Craven, Ann. "Screening Tests." *The Bulletin*. Connecticut: Connecticut Association for Health, Physical Education, and Recreation, March 1981.

Rehabilitation Act of 1973 (P.L. 93–112), Section 504, 29, U.S.C. 706.

Vodola, Thomas, project director. "Project Active—Developmental and Adapted Physical Education." Oakhurst, NJ: Township of Ocean School District.

Winnick, Joseph P. *Early Movement and Development Habilitation and Remediation*. Philadelphia: W.B. Saunders Co., 1979.

Connecticut State
Department of Education

Division of Elementary and Secondary Education

Robert Margolin, Associate Commissioner
and Division Director

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